

Thirteenth Report of the Independent Monitor

Racial Disparities in NYPD Stop, Question, and Frisk Practices: An Analysis of 2013 to 2019 Stop Reports

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September 1, 2021

Floyd, et al. v. City of New York
Ligon, et al. v. City of New York, et al.
Davis, et al. v. City of New York, et al.

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Racial Disparities in NYPD Stop, Question, and Frisk Practices: An Analysis of 2013 to 2019 Stop Reports

EXECUTIVE SUMMARY

This report examines racial disparities in the New York City Police Department's (NYPD) stop, question, and frisk (SQF) patterns in New York City (NYC) between the years 2013 and 2019. The *Floyd*, *Ligon*, and *Davis* litigations against the NYPD led to a series of reforms designed to reduce racial disparities and unlawful actions in their stops of civilians.

In its liability decision in August 2013, the Court ruled that the NYPD's stop and frisk practices violated the Fourteenth Amendment. The Court found that the City adopted a "policy of indirect racial profiling by targeting racially defined groups for stops based on local crime suspect data. This has resulted in the disproportionate and discriminatory stopping of Blacks and Hispanics in violation of the Equal Protection Clause." *Floyd v. City of New York*, 959 F. Supp. 2d 540, 562 (S.D.N.Y. 2013) (*Floyd* Liability Opinion). In its Remedial Opinion, the Court directed the NYPD to revise its policies and training regarding racial profiling "to make clear that targeting 'the right people' for stops, as described in the Liability Opinion, is a form of racial profiling and violates the Constitution." *Floyd v. City of New York*, 959 F. Supp. 2d 668, 680 (S.D.N.Y. 2013)(Remedial Opinion). The NYPD has made those changes in its policies and training. However, as noted in the Monitor's prior reports, changes in policy and training are not meaningful unless those changes are implemented and sustained in the field. To guide the Monitor Team in its examination of the Department's compliance with its racial profiling policies and the Fourteenth Amendment, Professor John MacDonald has used several statistical analyses of NYPD's stop and frisk data.

In the Monitor's Fifth Report, Dr. MacDonald examined NYPD's SQF data for the years 2013-2015. The analyses indicated that racial disparities during 2013-15 were trending in the right direction; most measures showed a diminution of racial disparities, although some did not. However, that Report drew no conclusion about the NYPD's constitutional compliance, for two reasons: first, statistical data over a more extensive period was needed; and second, the underreporting of stops limited the reliability of analyses based on data that include only reported stops.

For this report, Dr. MacDonald uses the statistical analyses applied in the Monitor's Fifth Report to see whether racial disparities continue, after controlling for other potentially confounding factors. He also addresses the problem of underreporting by conducting additional analyses to examine the extent to which undocumented stops might affect the estimates of racial disparities.

The number of stop reports filed by NYPD officers decreased dramatically between 2013 and 2019. This rapid decline commenced before the *Floyd* remedial order but accelerated after the NYPD started to implement the reforms mandated by the Court's remedial order. As detailed in the Monitor's Ninth, Eleventh, and other Reports, substantial changes have been made to the NYPD's stop policies, documentation, training, and auditing. The stop form itself was revised and can now be completed using an electronic form that officers can fill out on their phones, on tablets, or on a computer at the command. Importantly, during Compstat management accountability meetings, NYPD executives no longer emphasize increasing the number of stop forms as a key crime control output, so area commanders are no longer under pressure to have their officers make stops to show that they are indeed focused on reducing crime in their areas of responsibility.

The number of Black and Hispanic people subjected to stop encounters dropped significantly between 2013 and 2019, though the overall share of stops by race and ethnicity remained largely unchanged. The lack of change in the racial distribution of stops during this time period, even with an overall reduction in stops, reflects the fact that the number of stops of Whites and other groups was substantially lower than Hispanics and Blacks. In 2013, for example, the total number of reported stops of Black and Hispanic subjects was 5.0 and 2.6 times larger than that of reported stops of White subjects. In 2019, reported stops of Black and Hispanic subjects were 6.6 and 3.2 times larger than the total number of stops of White subjects. The yearly reduction in reported stops for Blacks (-11,818) and Hispanics (-6,226) exceeded the average number of reported stops of Whites per year (4,762).

The reasons for which people were stopped and the locations in which these stops occurred also remained generally the same across the six years. The analyses also show evidence of a reduced stability in the locations that have relatively high stops for a given year. These findings suggest that stop activities are no longer as spatially concentrated as they were in the past, which may reflect a movement away from using SQF activities as a crime control strategy in relatively high-crime places.

In this report, multivariate statistical models were used to examine racial disparities in post-stop outcomes of frisks, searches, summons, arrest, use of force, and the percentage of frisks and searches that resulted in the recovery of contraband or weapons, or “hit rates.” Three comparisons were made to test for racially disparate policing in these five stop outcomes: (1) unadjusted differences in stop outcomes for Black and Hispanic subjects relative to White and other racial group subjects; (2) adjusted differences in stop outcomes that control for stop contexts; and (3) doubly robust (DR) adjusted differences in stop outcomes that simultaneously reweight stop

contexts for White and other subjects to be statistically identical to Blacks and Hispanics, and control for stop context.

There is substantial evidence suggesting that many NYPD officers did not submit reports documenting all of their stops of civilians in years 2016 to 2019. These undocumented stops may undermine the reliability of statistical analyses to identify racially disparate stop report patterns and practices in NYC. To explore the impact of these possibly missing reports, several different methods were used to examine the extent to which undocumented stops may impact estimates of racial disparities in stop outcomes. The first method involved reweighting 2016-2019 stop reports so they had a similar distribution of characteristics and contexts of stops to those made in 2013, a year in which NYPD officer stop behaviors were not influenced by the reforms mandated by the Court. The second method assumed that stops involving frisks were more likely to be documented and limited the analyses of racial disparities only to the subset of 2016-2019 stop reports that involved frisks of subjects. The third method used missing stop report estimates generated by analyses of Civilian Complaint Review Board (CCRB) complaint data, Quality Assurance Division (QAD) RAND audits, and the recently completed body-worn camera (BWC) randomized experiment. The missing stop report estimates were used to adjust the stop disparity estimates.

All analytical results are presented and discussed in the report. However, conclusions about the existence of racial disparities in stop outcome measures were determined by statistically-significant doubly robust (DR) comparisons ($p < .01$). Key results of the statistical analyses were:

- The analyses suggest that disparities in frisks of Black and Hispanic stop subjects relative to frisks of White/Other subjects diminish over time and, after the implementation of the Court's remedial order, frisk rates do not differ significantly across the racial groups. However, when adjustments were made to account for undocumented stops, it appears that

Black subjects were more likely to be frisked relative to White/Other subjects between 2016 and 2019, with differences on the order of eight to 14 percentage points. Using the same approach to account for undocumented stops, Hispanic stop subjects were more likely to be frisked relative to White/Other subjects between 2016 and 2019, with differences on the order of five to seven percentage points.

- Search rate disparities between Black stop subjects relative to White/Other subjects also declined over time, with no differences in search rates noted between similarly situated racial groups after 2013. When undocumented stop rates were considered, however, Blacks were generally more likely to be searched during stops relative to Whites/Others between 2016 and 2019. The analyses generally did not find statistically significant differences in search rates for Hispanic subjects relative to search rates for White and other subjects between 2013 and 2019 using the various methodological approaches, including comparisons that considered undocumented stop rates.
- The analyses generally did not find statistically significant differences in summons rates when Black and Hispanic stop subjects were compared to White/Other stop subjects between 2013 and 2019 using the different methodological approaches, including comparisons that considered undocumented stop rates.
- The analyses did not find consistent differences in arrest rates when comparing Blacks and Hispanics relative to Whites/Others between 2013 and 2019. However, when adjustments were made to account for undocumented stops, the analyses suggested that Blacks were

more likely to be arrested when compared to White/Others between 2017 and 2019, with differences that ranged between six and eight percentage points. The same analyses found only one year (2018) where undocumented stops could lead to differences in arrest rates between Hispanic stop subjects and Whites/Others stopped by the police.

- The analyses did not find differences in the use of force rates when comparing Blacks and Hispanics relative to Whites and other stop subjects between 2014 and 2019. However, when adjustments were made to account for undocumented stops, the analyses suggested NYPD officers were more likely to use force during stops of Black subjects relative to stops of White/Other subjects between 2017 and 2019, with differences on the order of seven percentage points. This same analysis did not find any use of force rate differences between Hispanics and White/Other subjects stopped by the police.
- Hit rates for weapons and contraband from searches of White/Other stop subjects were generally higher than hit rates for Blacks and Hispanics, suggesting a lower threshold for searching. However, the analyses found that the differences in search hit rates for weapons and contraband were not statistically significant when Black stop subjects and Hispanic stop subjects were compared to Whites/Others stopped for similar contexts.

Consistent with the findings of the Monitor's Fifth Report, the analyses reveal that racial disparities between Blacks and Hispanics and similarly situated Whites/Others in frisks, searches, summonses, arrests, uses of force, and the recovery of a weapon or other contraband diminished substantially after the Court's remedial order. These results suggest that the post-*Floyd* reforms have helped address 14th Amendment concerns identified by the Court for stops that are recorded.

A second takeaway from these analyses, however, is that one cannot rely only on reported stops, given the likelihood of significant numbers of unreported stops, and that racial disparities may still be occurring if undocumented stops are taken into account. The doubly-robust estimation used in this report, which compares Blacks or Hispanics stopped to White/Other groups stopped under similar measured contexts, can only construct similarly situated comparisons based on the availability of accurate recording of stop data. The report provides an estimated range of unreported stops: at the low end of the estimate, the analyses continued to indicate a lack of racial disparities; at the high end of the estimate, however, the analysis showed the presence of racial disparities with respect to frisks, searches and use of force for Blacks and for Whites. As a result, undocumented stops raise concerns about the ability to draw strong conclusions about compliance with the 14th Amendment and concerns about Blacks and Hispanics not being treated similarly to Whites when stopped by the NYPD. This is particularly the case for comparisons of frisks, arrests, and uses of force for Blacks, as the estimated disparities in stop outcomes increase if one uses a larger estimate of undocumented stops. Estimates of disparities in stop outcomes for Hispanics compared to similarly situated White/Other groups appear to be largely unaffected by the different assumptions about the level of undocumented stops.

The NYPD needs to continue, and further strengthen, its efforts to ensure that its officers are documenting all civilian stops. Without complete data on stops, the NYPD will not be able to

demonstrate, and the Federal Monitor will not be able to conclude, that the NYPD is in substantial compliance with the Court's remedial order.

I. INTRODUCTION

The New York City Police Department (NYPD) has been implementing a series of reforms to its stop, question, and frisk (SQF) practices as mandated in the federal court orders in the *Floyd, et al. v. City of New York, et al.*, 08 Civ. 1034 (AT), *Ligon, et al. v. City of New York, et al.*, 12-CV-2274 (AT), and *Davis, et al. v. City of New York, et al.*, 10-CV-00699 (AT), lawsuits. As documented in previous reports, the mandated reforms include changes to NYPD stop policies, documentation, training, and auditing; modifications to the processing of civilian complaints and officer discipline procedures; the adoption of new measures to evaluate organizational performance; and the establishment and evaluation of a pilot body-worn camera (BWC) program. The number of stop reports completed by NYPD officers dropped precipitously before the Court's 2013 decision, decreasing by 72 percent from 685,724 in 2011 to 191,851 in 2013. Since the Court-ordered reforms, this steep decline continued through 2019, with only 13,459 reported stops made that year, representing a 98 percent drop from 2011. In this report, racial disparities in NYPD stops made between 2013 and 2019 are assessed.

Expert analyses indicating significant racial disparities in NYPD stop patterns and practices were highly influential in shaping Judge Scheindlin's 2013 decision that the NYPD was engaging in unconstitutional policing (Fagan, 2010; Gelman, Fagan & Kiss, 2007). As established in the expert reports to the Court, it is critically important for statistical analyses to control for rival factors that could explain the observed disparities when assessing the potential for racially discriminatory treatment. Indeed, it is common for the media and some in the community to compare the racial distribution of stops to the racial distribution of the community's residential population (see ACLU Massachusetts, 2014). However, such a simple comparison would not be a valid test of racial discrimination in police stops of civilians. Racial bias could be a factor in

generating observed disparities, but other factors, such as crime, police deployment patterns, and neighborhood disadvantage, may also contribute to the observed racial disparities in the overall pattern of police stops (Ridgeway & MacDonald, 2010). This report follows the statistical analyses developed and applied in the Monitor’s Fifth Report and many other social science papers (e.g., Knowles, Persico, & Todd, 2001; Anwar & Fang, 2006; Fagan, 2010; MacDonald & Braga, 2019; MacDonald & Fagan, 2019; Neil & Winship, 2019) that compare racial disparities in post-stop outcomes—frisks, searches, summonses, arrests, uses of force, and “hit rates”—after statistically controlling for other potentially confounding factors.

Hit rates represent the percentage of searches that turn up weapons or contraband as an outcome measure.¹ If a lower percentage of searched Blacks and Hispanics are found with contraband or weapons compared to White/Other groups, this provides evidence suggesting that the police may be applying a lower standard of suspicion to minorities in deciding whether to conduct a search (Ridgeway & MacDonald, 2010). If one considers stops of civilians as a series of repeated interactions where the police want to find contraband and suspects want to avoid being caught with contraband, police officers should improve their search strategies and criminals should improve on their ability to avoid detection, such that there should be no racial differences in hit rates from searches if both groups are trying to achieve their goal (Knowles, Persico, & Todd, 2001). Analyses of hit rates in police stops of civilians in a number of locations have found that searches of Hispanic subjects are less likely to yield contraband, suggesting a lower standard of suspicion being applied to this group (e.g., Knowles, Persico, & Todd, 2001; Persico & Todd, 2006; Baumgartner et al., 2018). A more recent study using traffic stop data from eight state police agencies and six municipalities found that search rates were significantly higher for Black and

¹ Hit rates can also be calculated as the percentage of frisks that recover weapons or contraband.

Hispanic drivers relative to White drivers, but that hit rates for contraband were significantly lower for Hispanic and Black drivers (Pierson et al., 2020).

Several papers, however, suggest that comparing hit rates from searches between races is not an accurate test of racial discrimination if the context of searches is different between racial groups (Ayres, 2002; Anwar & Fang, 2006; Engel & Tillyer, 2008; Sanga, 2009). For example, there may be factors associated with race that explain a greater propensity to search and a lower hit rate, but that have nothing to do with police officers applying a lower threshold of suspicion. This is often referred to as omitted variable bias (Neil & Winship, 2019), and indicates that it is important to have accurate measures of the context of the stop (e.g., suspected crime, location, time of day, etc.) in comparing racial disparities in hit rates (Ridgeway 2006). Additionally, there is the possibility that the distribution of weapons and/or contraband carrying differs by race, such that even if police apply searches in a race-neutral manner, there will be evidence of differences in the average hit rates of a search.² This is known as the infra-marginality problem (e.g., see Simiou, et al., 2017) and can yield inaccurate estimates of racial disparities in hit rates and other post-arrest outcomes, including frisks, searches, summonses, arrests, and uses of force.

A simple model can explain the basic problem of infra-marginality in an outcome test (hit rates) of police searches for contraband. Starting with an assumption that the probability of having contraband is five percent for Blacks and 15 percent for Whites, it is possible for police to appear racially biased for the average case even if they are race neutral. Assume that carrying contraband increases the risk of being searched by a factor of two regardless of race. Given that assumption,

² A race-neutral policy is one that focuses on improving public safety that is unrelated to the race of suspects. For example, a policy that focuses on reducing gun violence should in principle be race-neutral. The racial distribution of outcomes among similarly situated suspects should not change differently by race if police are applying the new policy in a neutral manner.

even if police applied a race-neutral approach to searches, the rate at which police recover contraband would suggest race bias, because the hit rate would be 10 percent for Blacks (0.05×2) and 30 percent for Whites (0.15×2). If, instead, police are racially biased in the decision to search suspects, and Blacks are three times more likely to be searched than Whites with contraband, the recovery rate would be 15 percent for Blacks (0.05×3) and 15 percent for Whites (0.15×1), suggesting no evidence of racial bias. This example violates a key assumption of the standard outcome test, “that the probability of being guilty is equal among all groups that are searched in equilibrium” (Knowles et al., 2001; p. 215). For outcomes tests to be a valid test of racial bias, one has to establish that marginal cases of outcomes from stops and searches are similar between racial groups.

Given the difficulties associated with addressing omitted (unobserved) variable bias and infra-marginality, scholars and policymakers alike should be cautious when interpreting the findings of outcome tests. One approach to addressing these limitations is to compare outcomes from stops after policy changes have been made by the police, as race-neutral changes should impact all groups equally (MacDonald & Fagan, 2019). All approaches to assessing whether racially biased policing occurs suffer from some weaknesses (Ridgeway & MacDonald, 2010; Neil & Winship, 2019).

The documentation of stops is essential for the NYPD to demonstrate substantial compliance with the remedial orders. As the NYPD has acknowledged, there is considerable evidence that their officers have not been documenting all stops of civilians. The NYPD Quality Assurance Division (QAD) conducts audits designed to identify stop encounters using radio transmissions to identify instances in which stop reports should have been prepared (labeled “RAND audits” from audits developed for NYPD by the RAND corporation). The monitor team’s

review of RAND audits from 2018 and 2019 show that some 36 percent of NYPD stops were not being documented as required. Similarly, analyses of self-initiated arrests suggest a substantial share of arrests originated from stops of civilians that did not generate the required stop reports. The Monitor's Eleventh Report also found that officers did not complete stop reports in seven percent of Civilian Complaint Review Board (CCRB) stop-related complaints. Finally, in the Monitor's Twelfth Report, the BWC cluster randomized controlled trial reported that BWC treatment officers submitted 39 percent more stop reports relative to no-camera control officers, suggesting that BWC officers were more likely to comply with NYPD directives to document all stops.

Without a full accounting of all stops of civilians, it is not possible to conclude that the NYPD is compliant with the remedial orders of the Court, as statistical analyses of racial disparities in stops may be biased by undocumented stop data. Although no conclusions were drawn about the NYPD's constitutional compliance, the statistical analyses of NYPD stop reports in the Monitor's Fifth Report suggested that most indicators of racial disparities had diminished between 2013 and 2015. However, those analyses did not attempt to adjust racial disparity estimates based on different measures of undocumented stops. In this report, all statistical analyses of 2016-2019 racial disparity outcome measures are adjusted using three different methods to address the absence of undocumented stops.

II. DATA AND MEASURES

NYPD stop report data were obtained for years 2013-2019 from open sources.³ The stop report data contain information on the reason for the reported stop noted by the police officer,

³ See: <https://www1.nyc.gov/site/nypd/stats/reports-analysis/stopfrisk.page> (Accessed June 30, 2021).

frisks or searches of individuals if made, and enforcement actions taken. Stop report data also contain demographic information of the stopped individual, including their age, race, and gender, and location and other contextual information about the stop. Indicator variables were generated to measure the race of stopped individuals according to major racial categories of Black, Hispanic, White, Asian, and Other groups. For the primary analysis, Blacks and Hispanics were contrasted with White and all other (Asian and Other) racial groups. For every stop report, indicators were created for the gender (male v. female) and age (less than 10; 10-15; 16-19; 20-24; 25-34; 35-64; 65+) of the stopped individual. To capture the general location of stops, indicators were generated for the precinct location (N=77 precincts, numbered 1... 123) of each stop report. To measure the suspected crime that the officer recorded as the reason for a stop, indicator variables were created for six major categories of violence, weapons, property, drugs, trespass, and quality of life offenses from approximately 93 different types of crimes noted in the detailed crime/misdemeanor field of the data. These broad race and crime categories are consistent with prior expert reports (see Fagan, 2010, 2012a, 2012b). To measure stops that are based on a suspect being identified from a radio call, indicator variables were generated for whether the stop was associated with a radio run or not. Indicator variables were also created to measure the day of the week (Sunday...Saturday), the time of day (patrol shift 1, 2, or 3), and the general location (housing, transit, or other) where the stop occurred.

Five outcome variables were created to measure whether the stop resulted in a frisk, search, summons, arrest, or use of force. These measures were not mutually exclusive, and indicated whether (=1) or not (=0) these outcomes occurred during a stop encounter. During stops, NYPD officers can search subjects in varying situations, including searches incident to arrest, searches resulting from a frisk, consent searches, and searches when police have probable cause to believe

a crime has been committed. In this analysis, the stop form captures NYPD officer searches based on reasonable suspicion and probable cause standards.⁴ Use of force captures incidents where an officer reported on the stop report using any force, including impact weapon, drawing /pointing firearm, physical force, O.C. Spray, and CEW (conducted energy weapon). Search hit rate measures were generated according to two indicators that measure whether the search resulted in finding of contraband, or whether the search resulted in the seizure of weapons (all gun types, knives, or other weapons). The final analytic database to assess racial disparities in individual stop outcomes consisted of an incident-level SQF file that contained all of these measures of stop characteristics and contexts over years 2013 to 2019.

Table 1 shows the number of reported stops and the percentage of stops by race for each year 2013 through 2019. The count of recorded stops dropped by 93 percent between 2013 and 2019, for an average yearly decline of 50 percent. The overall number of stops dropped the most for Blacks and Hispanics, though they remained more than 80 percent of all individuals stopped each year. While the number of stops of Blacks and Hispanics dropped precipitously between 2013 and 2019, the racial differences in the share of stops remained unaffected by the downturn. This is due to the fact that the average yearly change was roughly a decline of 50 percent for all racial groups.

Table 1. Racial Distribution of Suspects Stopped and in NYPD SQF Reports, 2013-2019

Race	2013	2014	2015	2016	2017	2018	2019	Total	Average Change
Black	104449 (54.4)	24319 (53.1)	11950 (53.0)	6498 (52.4)	6595 (56.7)	6241 (56.7)	7981 (59.3)	168033 (54.4)	-11818 (-49.23)
Hispanic	54930 (28.6)	12489 (27.3)	6499 (28.8)	3626 (29.2)	3567 (30.7)	3389 (30.8)	3869 (28.7)	88369 (28.6)	-6226 (-49.31)
White	20820 (10.9)	5467 (11.9)	2514 (11.1)	1270 (10.2)	977 (8.4)	1074 (9.8)	1215 (9.0)	33337 (10.8)	-2469 (-51.84)

⁴ The stop report form asks NYPD officers to indicate at least one of the following criteria for conducting a search: “hard object resembling a weapon,” “consent to search,” “admission of weapons possession,” “outline of a weapon,” “search incident to arrest,” and “other (describe below).”

Asian	7663 (4.0)	2473 (5.4)	1180 (5.2)	775 (6.2)	215 (1.8)	237 (2.2)	309 (2.3)	12852 (4.2)	-982 (-53.49)
Other	2844 (1.5)	739 (1.6)	298 (1.3)	140 (1.1)	0 (0.0)	0 (0.0)	0 (0.0)	4021 (1.3)	--
Unknown	1145 (0.6)	300 (0.7)	122 (0.5)	95 (0.8)	275 (2.4)	67 (0.6)	85 (0.6)	2089 (0.7)	-125 (-41.8)
Total	191851 (100.0)	45787 (100.0)	22563 (100.0)	12404 (100.0)	11629 (100.0)	11008 (100.0)	13459 (100.0)	308701 (100.0)	-21988 (-49.86)

Note: Raw numbers are in rows and percentages are in parentheses.

Table 2 shows the distribution of six major categories of crime suspected among those stopped. The yearly distribution of these broad crime categories in stop reports indicates that suspected property crimes (32%) and weapon offenses (26%) represent over half of the crimes suspected for individuals stopped each year. The yearly change in property and other categories between 2016 and 2017 are the result of the change in stop forms, which had fewer categories to classify as property offenses. Starting in 2016, there is evidence that the share of stops for violent suspected crimes increases, suggesting that stops are of a more serious nature. In the analyses that follow, we assess outcomes within each year so that the year-to-year changes in suspected crime classifications have no material impact on the disparity analyses.

Table 2. Distribution of Suspected Crimes in NYPD SQF Reports, 2013-2019

Suspected Crimes	2013	2014	2015	2016	2017	2018	2019	Total
Violence	45701 (23.8)	9010 (19.7)	4954 (22.0)	3280 (26.4)	3019 (26.0)	3090 (28.1)	3866 (28.7)	72920 (23.6)
Weapons	47248 (24.6)	12455 (27.2)	6866 (30.4)	3550 (28.6)	3157 (27.1)	2962 (26.9)	3707 (27.5)	79945 (25.9)
Property	62699 (32.7)	15631 (34.1)	7113 (31.5)	3665 (29.5)	2752 (23.7)	2831 (25.7)	3604 (26.8)	98295 (31.8)
Drugs	17428 (9.1)	4131 (9.0)	1731 (7.7)	722 (5.8)	525 (4.5)	448 (4.1)	319 (2.4)	25304 (8.2)
Trespass	13216 (6.9)	3338 (7.3)	1360 (6.0)	825 (6.7)	957 (8.2)	484 (4.4)	490 (3.6)	20670 (6.7)
Quality of Life	2865 (1.5)	401 (0.9)	126 (0.6)	84 (0.7)	266 (2.3)	234 (2.1)	337 (2.5)	4313 (1.4)
Other	2694 (1.4)	821 (1.8)	413 (1.8)	278 (2.2)	953 (8.2)	959 (8.7)	1136 (8.4)	7254 (2.3)
Total	191851	45787	22563	12404	11629	11008	13459	308701

(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)
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Note: Raw numbers are in rows and percentages are in parentheses.

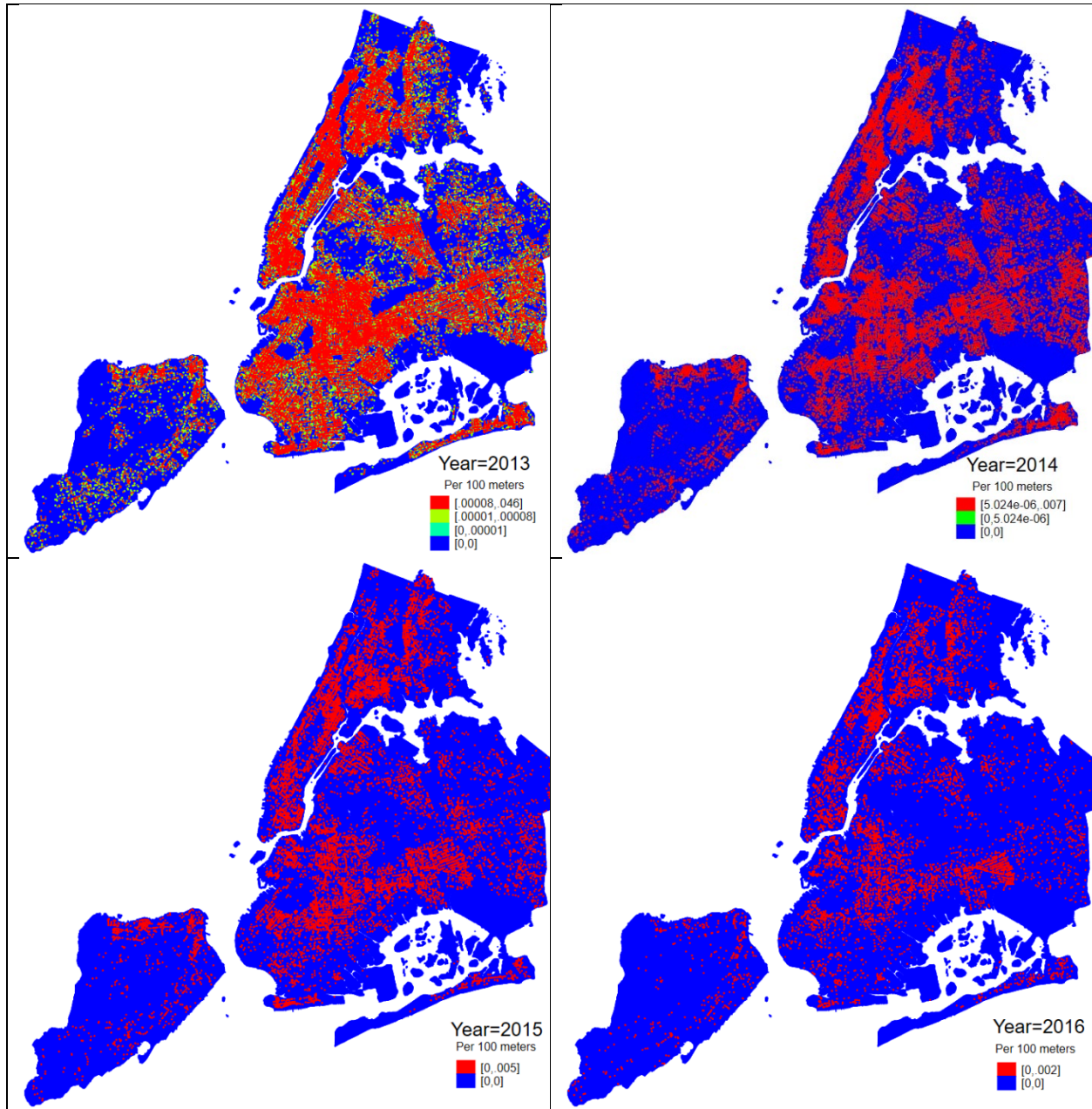
Figure 1 shows the spatial pattern of stops during 2013-2019 by the frequency of reported stops per 100 square meters⁵ in NYC. Figure 1 reveals that although reported stops dropped across NYC, the spatial distribution of the areas with higher numbers of stops remained generally the same across the four years. A Spearman rank correlation coefficient⁶ suggests a modest but statistically significant ($p < .001$) correlation between the rank number of stop reports per 100 square meters in 2013 with other years. However, the pattern does suggest that the correlation diminishes over time ($\rho = .446$, 2014; $\rho = .356$, 2015; $\rho = .287$, 2016; $\rho = .283$, 2017; $\rho = .289$, 2018; $\rho = .309$, 2019), implying a reduced stability in the locations that have relatively high stop numbers for a given year.⁷

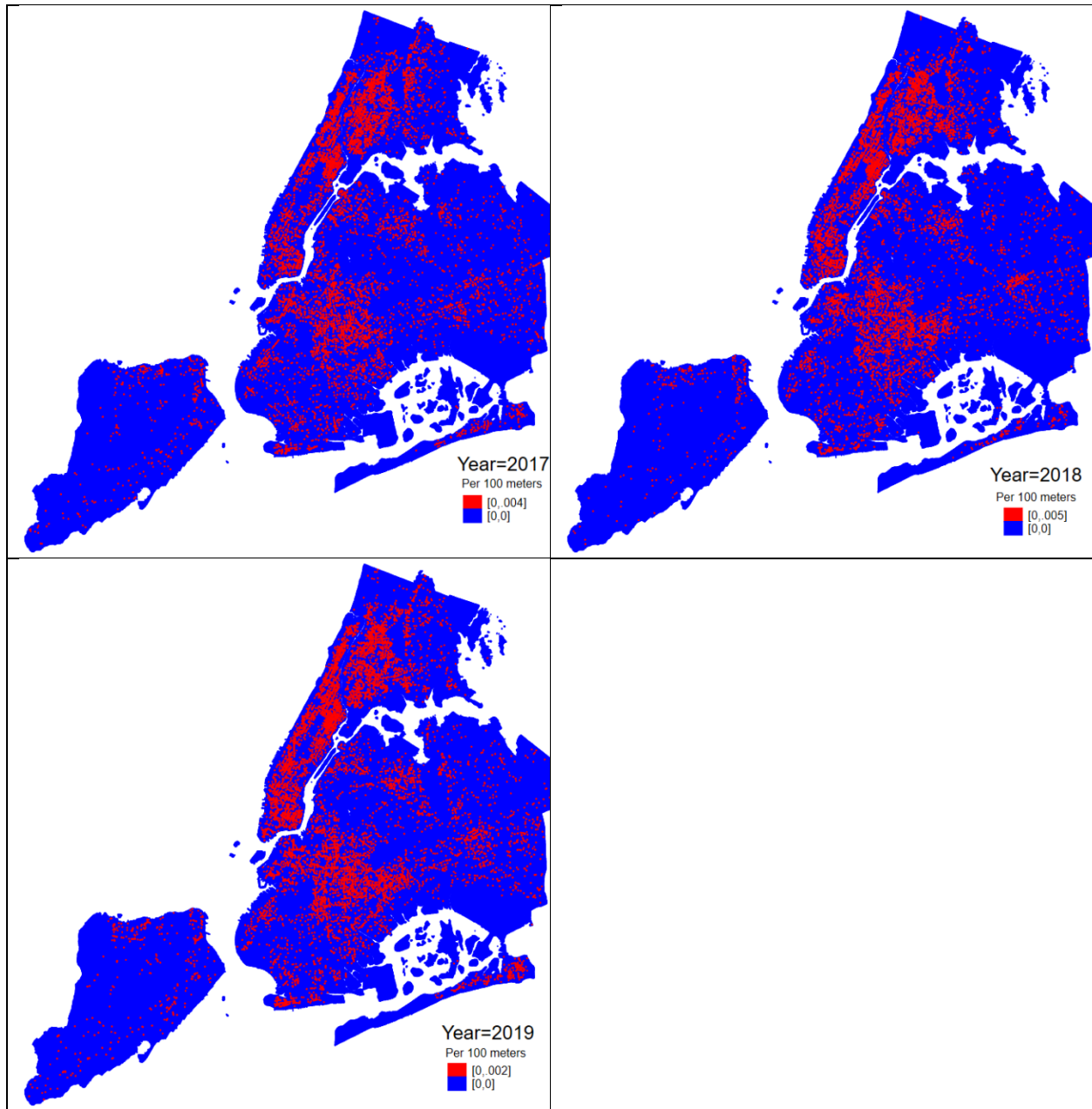
⁵ Estimated from kernel density of 973,403 hexagon grids superimposed over a map of New York City.

⁶ Spearman rank correlation coefficient (ρ) measures the direction and strength of the relationship between two ranked (or ordinal) variables, ranging from -1 (perfect negative relationship) to +1 (perfect positive relationship) (see Fieller et al., 1957).

⁷ A fixed effect analysis that controls for the locations of each stop report ($n = 973,403$ hexagon grids) shows that stops declined significantly each year, and that the year-to-year variation significantly explains the variation in stops ($F\text{-test}(6,5840412) = 10204.91$, $p < .0001$). This implies that the reduction in stops over these years was not driven by a reduction in a limited number of high stop locations; instead, it appears that stops decreased across the board in almost all locations.

Figure 1: Stops per 100 Square Meters, NYC





Over the period 2013 to 2019, the reasons for making stops, the racial distributions of subjects in stops, and locations of recorded stops remained fairly consistent during the course of a massive citywide drop in recorded stops. In the following analysis, the impact of the reduction in reported stop activity on racial disparities in outcomes is assessed. As noted earlier, there is considerable evidence that NYPD officers are not documenting all of their stops of civilians. For

this reason, the extent to which failure to document stops (i.e., missing data) impacts the estimates of racial disparities is assessed for each outcome test.

III. ESTIMATING RACIAL DISPARITIES IN STOP OUTCOMES

To examine racial and ethnic disparities in stop outcomes (frisks, searches, summonses, arrests, and uses of force) and hit rates (findings of contraband and weapons) and how they change over time, multivariate logistic regression models were estimated that permit statistically adjusting for average differences in the stop contexts involving Black, Hispanic, and White/Other civilians. Specifically, overall racial and ethnic disparities in frisks, searches, summonses, arrests, uses of force, and the finding of contraband and weapons, not adjusting for any stop context (equal to the average differences in each group), were compared to the racial and ethnic disparities that remain after statistically controlling for stop context (e.g., major crime suspected; day of the week; patrol shift; housing, transit, or other location; gender of person stopped; age of person stopped; whether the stop was based on a radio run or self-initiated; and precinct location). The disparities that remained after controlling for stop context were then compared to a sample of stops of White/Other subjects that were statistically identical on stop features to stops of Black or Hispanic subjects. This last comparison is referred to as a “doubly robust” estimator (DR). The DR estimation addresses potential concerns that factors which are correlated with race, such as the suspected crime and precinct location, are not adequately adjusted for in traditional multivariate regression models that assume the relationship between race and an outcome is linear after controlling for other variables (Morgan & Winship, 2015). For example, there may be nonlinear relationships between race and other factors like suspected crime categories. By relying on the DR estimation,

we guard against calculating a statistically biased estimate of racial disparity that was generated from an incorrectly modeled comparison of Blacks and Hispanics with White/Other subjects.⁸

Three methods were relied on to assess the extent to which undocumented stops may impact estimates of racial disparities in stop outcomes. First, it was assumed that missing (undocumented) stops were less of a concern in 2013, as the NYPD put more incentive on officers to fill out stop reports as part of their effort to show commanders that they were engaged in proactive policing during that time period. Based on this assumption, the following missing data algorithm was developed to make the characteristics and contexts of 2016-2019 similar to what would have been expected if these stops were made in 2013. For each stop in 2016 to 2019, the features of stops were reweighted using an entropy balancing algorithm so that the reweighted stops had a similar distribution of features when compared to the 2013 stops. To ensure that the 2016-2019 stops had a similar distribution among racial groups to those stops made in 2013, these weights were then multiplied with those derived to match Black or Hispanic stops to similarly situated White/Other stops (Ridgeway et al., 2015). The logic here is that this missing data algorithm places greater weight for stops reported in locations and for reasons that are similar to 2013. If, for example, there were 10 stops of Black males aged 20-24 for weapons related offenses in 2013 in Precinct 44 and only 1 in 2016, the stop made in 2016 would be given a weight of 10 in the analysis.

The second approach assumes stops that result in frisks are more likely to result in subsequent actions that lead to the documentation of the stop. This assumption is based on the fact

⁸ We rely on entropy balancing, which is a numerical optimization that reweights Whites/Others stopped to be identical to Blacks or Hispanics stopped on the mean, variance, and skew of all observable characteristics aside from race (Hainmueller, 2011). The weights are then included in a regression model so that estimates are doubly robust, meaning that if either the estimates from a regression model or those from the entropy balancing weights are correct, we will have an unbiased estimate of racial disparities in outcomes from stop reports (Wooldridge, 2010; Zhao & Percival, 2015).

that stops with frisk are more intrusive, last longer and are more likely to result in a search or an arrest than stops without frisks. Intrusive encounters can also lead to civilian complaints. Officers are more likely to document encounters that involve additional enforcement action such as frisks, searches, arrests or uses of force than shorter duration encounters that do not involve any additional actions, as those encounters are more likely to be discovered by internal auditors or by outside agencies, such as the CCRB. Following this logic, this missing data method assesses the extent to which undocumented stops may impact racial disparities in stop outcomes in 2016 to 2019 by selecting the subset of stops for which a frisk occurred. For stops that result in a search, summons, arrest, or use of force, we examine disparities with the DR estimator for those that had a frisk documented.

The third approach assesses the impact of undocumented stops on racial disparities in stop outcomes between 2016 and 2019 by relying on missing data estimates from RAND audits conducted by NYPD's QAD unit, the BWC experiment, and CCRB complaints. Computer-Aided Dispatch (CAD) data document instances when NYPD officers may have stopped civilians and, as such, can be used to generate an estimate of the share of undocumented *Terry* stops that do not have the required stop form completed. For years 2018-2019, the RAND audits showed that approximately 36 percent of stops were not documented that should have been. Two other sources also provide estimates of undocumented stops. The BWC experiment conducted by the monitor⁹ found that officers were more likely to document a stop when equipped with a camera compared to officers in control precincts not equipped with cameras. At the same time, summonses and arrests did not differ between BWC precinct officers and control precinct officers. These findings

⁹ <http://nypdmonitor.org/wp-content/uploads/2020/12/12th-Report.pdf> (accessed February 27, 2021).

suggest that 39 percent of stops should have been documented in the control precincts, but were not. We rely on this metric as another source for estimating potential underreporting of stops.¹⁰

Finally, complaints submitted to the CCRB between 2017 and 2019 suggest that in approximately seven percent (180/2608) of cases in which a civilian filed a complaint for a stop that was deemed to have occurred, investigators found a failure to fill out a stop report (see Chart 2, Monitor’s Eleventh Report). This measure of undocumented stops is likely to represent an underestimate (or “lower bound”) of undocumented stops, as it is likely that cases that rise to the level of filing a complaint by a civilian are going to be those that are more likely to be documented by NYPD officers.

The measures of seven percent (CCRB), 36 percent (RAND), and 39 percent (BWC) were used to provide estimates of how the level of undocumented stops may impact racial disparities in stop outcomes.¹¹ For each of these measures the fraction of missing stops is assigned to be consistent with the overall distribution of stops by race/ethnicity in the population for a given year. We use the law of total probability and assume that the probability of each outcome (frisks, searches, summonses, arrests, and uses of force) is a sum of the conditional probabilities of the stop for a given race and whether it is missing or not. For example, if .07 (7%) of 2016 stops are assumed to be missing and Blacks represent 0.52 (52%) of stops reported in that year, then we

¹⁰ By 2019, all officers had BWCs. In using the 39 percent figure, the analysis assumes that by 2019, most officers will have gotten used to wearing BWCs, so that at least some portion of officers would go back to their prior level of documentation. But not all officers will have gone back to their habitual level of documentation. Thus, the 39 percent estimate of undocumented stops is the upper bound of the estimates for the level of undocumented stops. This figure is used to show what the racial disparity results might be if underreporting were at its highest level.

¹¹ The NYPD also audits police-initiated enforcement arrests as a way of identifying undocumented stops. However, one could reasonably argue that NYPD officers may deem filling out a stop form unnecessary when they are documenting much of the same information on an arrest form. Research in other cities suggests this is a very reasonable assumption. For instance, during the 2007-2010 time period, Boston Police Department officers did not think it was necessary fill out stop reports (called Field Interrogation and Observation reports) when an encounter with a civilian led to an arrest (Fagan et al., 2016). For this reason, police-initiated enforcement audits of arrests were not used as an estimate of undocumented stops.

multiply those probabilities by the probability of a frisk given someone is Black (.668, or 67%). Following the law of total probability, we can then add all the marginal probabilities together to obtain the overall probability (rate) of a given outcome for each racial group.¹² This approach makes the explicit assumption that any group that is a larger share of the stops in a reported year will have proportionally a higher outcome of frisks, searches, summonses, arrests, and uses of force among undocumented stops. In other words, the approach using the law of total probability assumes that undocumented stops for Blacks and Hispanics are more likely to be subject to a frisk, search, summons, arrest, or use of force than undocumented stops for Whites/Others stopped in similar contexts.¹³ The standard errors from the DR estimator are used in calculating the differences among racial and ethnic groups, so that the impact of undocumented stops is assumed to be missing at random conditional on variables.

For all outcome tests (frisks, searches, summonses, arrests, uses of force, and hit rates), comparative results for Black subjects relative to White/Other subjects are presented first, followed by comparative results for Hispanic subjects relative to White/Other subjects. We interpret p -values less than 0.01 as a significant effect. We used the lower p -value .01 rather than .05 to account for multiple outcome tests across years. This more restrictive threshold was used to avoid “false discoveries”—by chance alone, the application of the $p < .05$ threshold could lead one to

¹² For 2016, the overall probability of frisk given a stopped subject was Black can be written as follows: $P(\text{Frisk}|\text{Black},\text{Stop}) = P(\text{Frisk}|\text{Stop},\text{Black},\text{Stop Not Missing}) * P(\text{Stop Not Missing}|\text{Black},\text{Stop}) + P(\text{Frisk}|\text{Stop},\text{Black},\text{Stop Missing}) * P(\text{Stop Missing}|\text{Black},\text{Stop})$. This is equivalent to $0.668 * 0.93 + .668 * .52 * 0.07 = .645$.

¹³ An analysis was also conducted using a different assumption: that outcomes from undocumented stops are similar to years 2011 or 2012 for Blacks and Hispanics compared to similarly situated Whites/Others. Using that assumption, the total probability will be simply the outcome for a given racial group in 2011 or 2012 times the proportion of estimated missing cases, plus the outcome from the current year (2016, 2017, 2018, or 2019) times the proportion of documented cases. This benchmark means that the average undocumented case in years 2016 to 2019 by race/ethnicity looks like the average case in years 2011 and 2012. The results from this approach (not displayed) show minimal impact on the racial disparity estimates presented.

falsely reject the null hypothesis of no racial disparity in outcomes in five out of 100 tests.¹⁴ Finally, we also note when yearly fluctuations in the numbers of stop reports and estimated counts of undocumented stops influence the statistical significance of outcome tests. Larger numbers of cases reduce standard errors around point estimates and, in turn, make it easier to reject null hypotheses at the established $p < .01$ level. In these situations, statistically significant results do not necessarily support substantive conclusions about racial disparities associated with a specific outcome test in a particular year.

IV. RESULTS

A. Frisk Disparities

This section presents the results of the multivariate logistic regression analyses of racial and ethnic disparities in frisk rates each year during NYPD stops. Table 3 shows the results for disparities in frisks for Black subjects compared to White/Other subjects, before and after adjusting for stop context each year. Column 1 shows the unadjusted disparities, or the differences in averages without controlling for any stop contexts. Column 2 shows disparities after adjusting for stop context, and Column 3 shows the disparities after doubly robust (DR) comparison. In each year, Blacks have a higher frisk rate than White/Other racial groups. The rate of frisks for Blacks stopped by the NYPD ranges from a low of 61.3 percent in 2013 to a high of 71.2 percent in 2015, compared to 48.7 percent and 57.8 percent for White/Other racial groups. The adjusted disparities shown in Column 3 indicates that the differences in frisk rates were statistically significant in 2013 and 2014, but were no longer statistically significant from 2015 through 2019.

¹⁴ Some have argued that the threshold for the discovery of “new effects” should be $p < .005$ (Benjamin et al., 2018). Since these analyses are a reproduction of existing findings of racial disparities accepted by the Court, the $p < .005$ is too high a threshold for rejecting the null hypothesis of no racial disparity between Blacks and Hispanics and White/Others in stop outcomes.

Table 3. Frisk Rates for Blacks vs. Whites/Others, 2013-2019

Frisk	(1) No Controls	(2) Controls	(3) DR
2013			
Black (OR)	1.666** (0.0213)	1.212** (0.0213)	1.248** (0.0350)
White/White/Other Mean	0.487	0.487	0.576
Black Mean	0.613	0.613	0.613
Observations	136921	136471	136471
2014			
Black (OR)	1.698** (0.0434)	1.157** (0.0396)	1.192** (0.0660)
White/Other Mean	0.578	0.578	0.673
Black Mean	0.699	0.699	0.699
Observations	33298	33196	33196
2015			
Black (OR)	1.830** (0.0685)	1.207** (0.0583)	1.134 (0.0778)
White/Other Mean	0.575	0.575	0.696
Black Mean	0.712	0.713	0.713
Observations	16064	15977	15977
2016			
Black (OR)	1.661** (0.0825)	1.185** (0.0761)	1.031 (0.0934)
White/Other Mean	0.547	0.547	0.667
Black Mean	0.667	0.668	0.668
Observations	8778	8750	8750
2017			
Black (OR)	1.672** (0.0971)	1.188 (0.0917)	1.255 (0.153)
White/Other Mean	0.491	0.494	0.580
Black Mean	0.618	0.616	0.616
Observations	8062	7335	7335
2018			
Black (OR)	1.965** (0.118)	1.342** (0.107)	1.023 (0.115)
White/Other Mean	0.456	0.456	0.633
Black Mean	0.623	0.626	0.626
Observations	7619	7031	7031
2019			
Black (OR)	1.669** (0.0917)	1.002 (0.0745)	1.235 (0.145)
White/Other Mean	0.452	0.451	0.545
Black Mean	0.580	0.582	0.582
Observations	9590	8814	8814

Note: OR=Odds Ratios; standard errors in parentheses; effective sample size from observations is lower than actual observations due to weighting. Estimates in column 2 include major crime suspected; day of the week; patrol shift; housing, transit, or other location; gender of person stopped; age of person stopped; SQF based on radio run; precinct location. DR=doubly robust and includes all control variables and entropy weight. $**p < .01$

The pattern of frisk disparities after adjusting for similarly-situated stops context is shown graphically in Figure 2. Figure 2 shows that by 2015, the Black v. White/Other frisk rates are no longer substantively different, as the 95 percent confidence intervals overlap, and that frisk rates reflect an average absolute difference of less than 1 to 3.7 percentage points between groups.

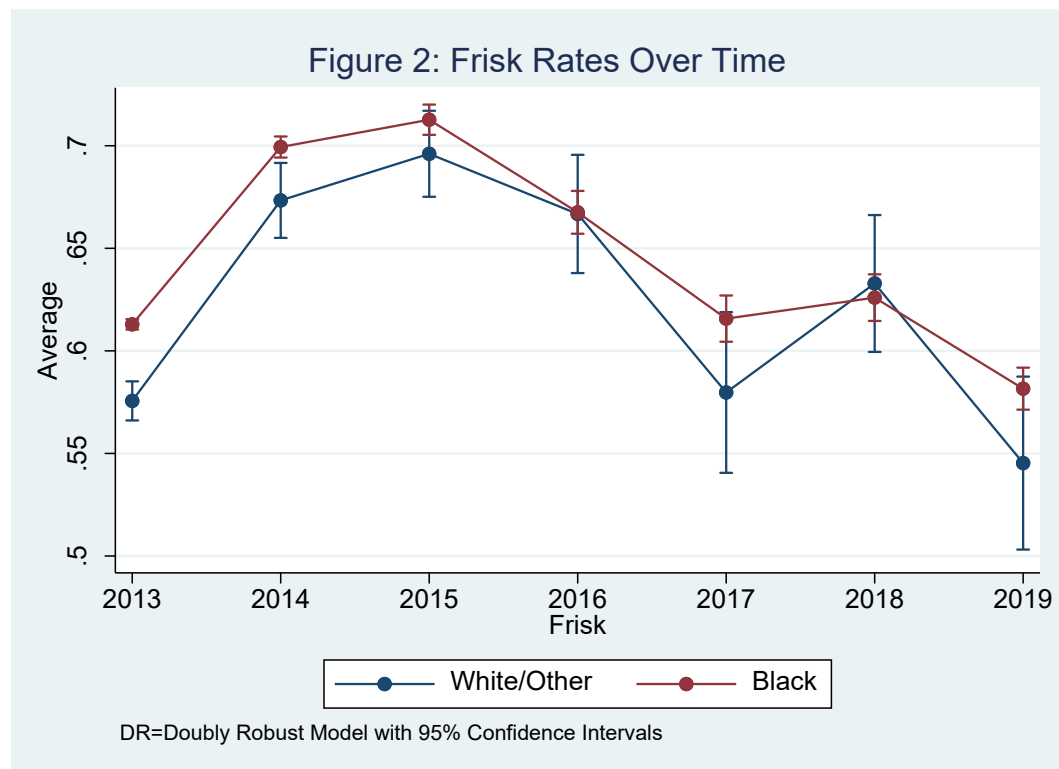


Table 4 shows how undocumented stops in 2016-2019 may have potentially impacted racial disparity estimates in frisks after reweighting the 2016-2019 stop distribution to be similar to the distribution of 2013 stops (Column 1), or by assuming that undocumented stops occur at rates similar to those found in investigations of CCRB complaints (7%) (Column 2), RAND audits (36%) (Column 3), and the BWC experiment (39%) (Column 4). The results indicate that frisk disparities for Black subjects relative to White/Other subjects were not statistically different from

each other after reweighting stops from 2016 to 2019 to be similar to stops made in 2013 (Column 1). Mean frisk differences between the two groups were on the order of 2 to 5 percentage points. With the one-year exception of 2017, reweighting the 2016-2019 stop distribution by the undocumented stop rate suggested by the CCRB complaint investigations (7%) did not produce significant frisk disparities between Black subjects and White/Other subjects. However, statistically significant frisk disparities are apparent when the RAND (36%) and BWC (39%) undocumented stop rates are applied. Specifically, the disparity in frisks between Black stop subjects and White/Other stop subjects moves to a range of 8-14 percentage points if one assumes that 2016-2019 stops are undocumented at levels found in the RAND audits and BWC experiment (Columns 3 and 4).

Table 4. Frisk of Blacks vs. Whites/Others Adjusting for Rates of Undocumented Stops, 2016-2019

Frisk	(1) 2013	(2) CCRB	(3) RAND	(4) BWC
2016				
White/Other Mean	0.656	0.628	0.470	0.454
Black Mean	0.655	0.645	0.552**	0.543**
Observations	8750			
2017				
White/Other Mean	0.619	0.543	0.392	0.376
Black Mean	0.641	0.597**	0.520**	0.512**
Observations	7335			
2018				
White/Other Mean	0.586	0.594	0.432	0.416
Black Mean	0.631	0.607	0.529**	0.521**
Observations	7031			
2019				
White/Other Mean	0.559	0.511	0.371	0.356
Black Mean	0.600	0.565	0.496**	0.489**
Observations	8814			

Note: Effective sample size from observations is lower than actual observations due to weighting. Column 1 estimates include: entropy weight for comparability to 2013 stop contexts*entropy weight for White/Other to be similar to Black stops; major crime suspected; day of the week; patrol shift; housing, transit, or other location; gender of person stopped; age of person stopped; SQF based on radio run; precinct location. DR=doubly robust and includes all control variables and entropy weight. ** $p < .01$

Table 5 shows the results for frisks for Hispanic stop subjects relative to White/Other subjects. The results show that there are statistically significant disparities in frisk rates over time when no controls are included in the analysis. However, frisk rate differences between Hispanic stop subjects and White/Other stop subjects shrink substantially when control variables are included in the analysis, and the differences are not statistically significant in 2017 and 2019. When frisk rates for Hispanic subjects are compared to frisk rates for White/Other subjects stopped in similar contexts (Column 3), Hispanics are more likely to be frisked in 2013 and 2014 (2%-4% points), but these differences are no longer statistically significant between 2015 and 2019.

Table 5. Frisk Outcomes for Hispanics Compared to Whites/Others, 2013-2019

Frisk	(1) No Controls	(2) Controls	(3) DR
2013			
Hispanic (OR)	1.450** (0.0204)	1.117** (0.0198)	1.109** (0.0258)
White/Other Mean	0.487	0.562	0.562
Hispanic Mean	0.579	0.580	0.580
Observations	87402	87207	87207
2014			
Hispanic (OR)	1.375** (0.0391)	1.095** (0.0383)	1.170** (0.0546)
White/Other Mean	0.578	0.627	0.627
Hispanic Mean	0.653	0.653	0.653
Observations	21468	21415	21415
2015			
Hispanic (OR)	1.525** (0.0628)	1.161** (0.0579)	1.141 (0.0744)
White/Other Mean	0.575	0.652	0.652
Hispanic Mean	0.674	0.674	0.674
Observations	10613	10565	10565
2016			
Hispanic (OR)	1.537** (0.0839)	1.200** (0.0815)	1.226 (0.106)
White/Other Mean	0.547	0.612	0.612
Hispanic Mean	0.650	0.649	0.649
Observations	5906	5884	5884
2017			
Hispanic (OR)	1.761** (0.110)	1.234 (0.104)	1.203 (0.144)

White/Other Mean	0.491	0.601	0.601
Hispanic Mean	0.630	0.633	0.633
Observations	5034	4633	4633
2018			
Hispanic (OR)	1.723** (0.111)	1.280** (0.110)	1.035 (0.123)
White/Other Mean	0.456	0.588	0.588
Hispanic Mean	0.591	0.595	0.595
Observations	4767	4446	4446
2019			
Hispanic (OR)	1.718** (0.103)	1.225 (0.0964)	1.258 (0.134)
White/Other Mean	0.452	0.540	0.540
Hispanic Mean	0.587	0.582	0.582
Observations	5478	5076	5076

Note: OR=Odds Ratio; standard errors in parentheses; effective sample size from observations is lower than actual observations due to weighting. Estimates in column 2 include major crime suspected; day of the week; patrol shift; housing, transit, or other location; gender of person stopped; age of person stopped; SQF based on radio run; precinct location. DR=doubly robust and includes all control variables and entropy weight. ** $p < .01$

Figure 3 shows the frisk rates from the DR estimates with their 95 percent confidence intervals between Hispanics and White/Other groups. The results make it clear that the disparities that existed from 2013 to 2014 shrink over time, even as the overall frisk rates increase in 2015 and subsequently decline through 2019.

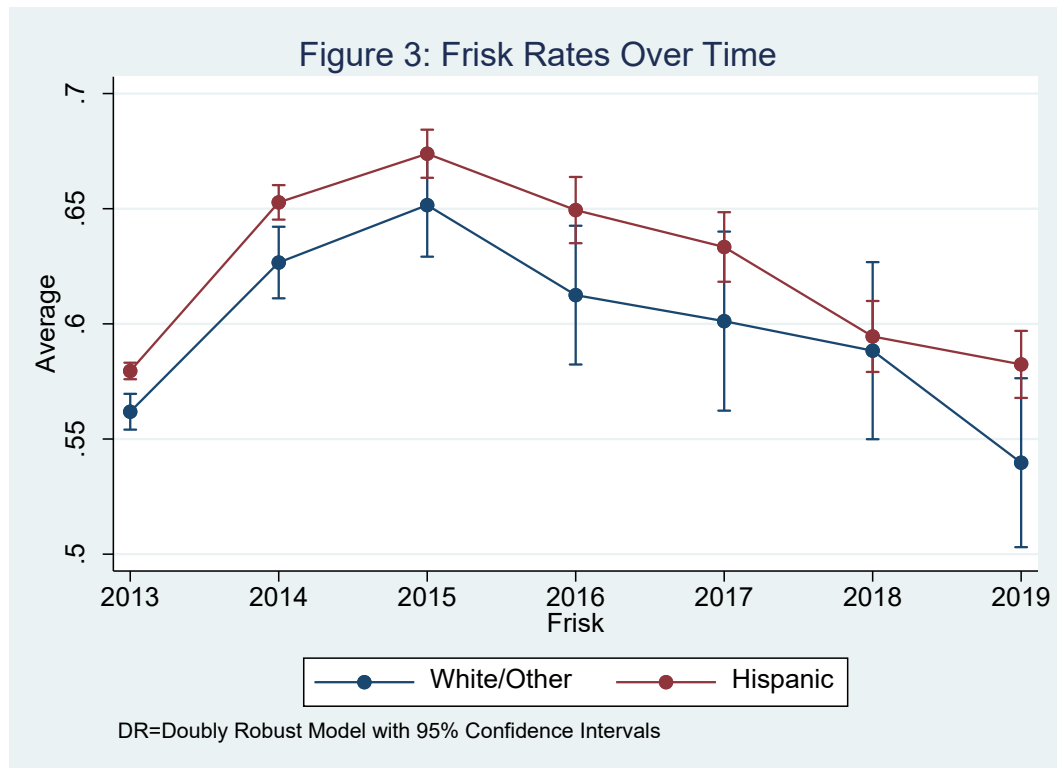


Table 6 shows the results for frisk outcomes for Hispanic subjects when compared to similarly situated White/Other subjects after adjusting 2016-2019 stops contexts to be similar to stop contexts that occurred in 2013, as well as comparisons of frisks assuming that undocumented stops occur at rates reported from CCRB complaints, RAND audits, and the BWC experiment. The results indicate that frisk disparities for Hispanic subjects relative to White/Other subjects were not statistically different from each other after reweighting stops from 2016 to 2019 to be similar to stops made in 2013 (Column 1). Nor were the disparities statistically significant after reweighting the 2016-2019 stop distribution by the undocumented stop rate suggested by the CCRB complaints (7%) (Column 2). The results from the estimates of the disparities for Hispanics compared to White/Other subjects did show disparities in frisk rates when accounting for undocumented stop rates at levels found in RAND audits and the BWC experiment in three out of four years (Columns 3 and 4).

Table 6: Frisk of Hispanics vs. Whites/Others Adjusting for

Rates of Undocumented Stops, 2016-2019				
	(1)	(2)	(3)	(4)
Frisk	2013	CCRB	RAND	BWC
2016				
White/Other Mean	0.598	0.578	0.432	0.417
Hispanic Mean	0.634	0.617	0.484**	0.470**
Observations	5884			
2017				
White/Other Mean	0.572	0.563	0.406	0.390
Hispanic Mean	0.630	0.603	0.476**	0.463**
Observations	4633			
2018				
White/Other Mean	0.523	0.552	0.402	0.386
Hispanic Mean	0.555	0.566	0.447	0.435
Observations	4446			
2019				
White/Other Mean	0.511	0.506	0.367	0.352
Hispanic Mean	0.553	0.553	0.434**	0.421**
Observations	5076			

Note: Effective sample size from observations is lower than actual observations due to weighting. Column 1 estimates include: entropy weight for comparability to 2013 stop contexts*entropy weight for White/Other to be similar to Hispanic stops; major crime suspected; day of the week; patrol shift; housing, transit, or other location; gender of person stopped; age of person stopped; SQF based on radio run; precinct location. DR=doubly robust and includes all control variables and entropy weight. ** $p < .01$

B. Search Disparities

Table 7 shows the comparative results for search rates for Black stop subjects relative to White/Other stop subjects. In 2013 to 2015, Black stop subjects had a slightly lower search rate when compared to similarly situated White/Other stop subjects. The adjusted differences were on the order of 0.5 to 1.9 percentage points.¹⁵ In 2016 to 2019, after adjusting for stop contexts, the disparities in searches switches direction and indicates that Black stop subjects were slightly more likely to be searched. However, across the entire time period, search rates do not appear to be significantly different between Black subjects and White/Other subjects stopped in similar contexts.

Table 7. Search Rates for Blacks ss. Whites/Others, 2013-2019

¹⁵ The statistically significant differences ($p < .01$) for DR adjusted search outcomes in 2013 is a result of the number of observations being substantially larger.

Search	(1) No Controls	(2) Controls	(3) DR
2013			
Black (OR)	0.953 (0.0207)	0.939 (0.0246)	0.882** (0.0344)
White/Other Mean	0.0960	0.0959	0.103
Black Mean	0.0919	0.0920	0.092
Observations	136921	136471	136471
2014			
Black (OR)	1.099** (0.0388)	0.958 (0.0415)	0.865 (0.0588)
White/Other Mean	0.140	0.140	0.171
Black Mean	0.151	0.152	0.152
Observations	33298	33196	33196
2015			
Black (OR)	1.178** (0.0578)	1.032 (0.0616)	0.975 (0.0927)
White/Other Mean	0.157	0.156	0.185
Black Mean	0.179	0.180	0.180
Observations	16064	15977	15977
2016			
Black (OR)	0.984 (0.0568)	0.988 (0.0694)	1.087 (0.115)
White/Other Mean	0.232	0.232	0.216
Black Mean	0.229	0.230	0.230
Observations	8778	8723	8723
2017			
Black (OR)	0.935 (0.0572)	1.072 (0.0820)	0.995 (0.130)
White/Other Mean	0.337	0.346	0.334
Black Mean	0.322	0.336	0.336
Observations	8062	7335	7335
2018			
Black (OR)	1.006 (0.0641)	1.232** (0.0972)	1.218 (0.165)
White/Other Mean	0.321	0.334	0.302
Black Mean	0.323	0.336	0.336
Observations	7619	7027	7027
2019			
Black (OR)	0.889 (0.0500)	1.059 (0.0719)	1.153 (0.131)
White/Other Mean	0.385	0.391	0.347
Black Mean	0.358	0.375	0.375
Observations	9590	8814	8814

Note: OR=Odds Ratio; standard errors in parentheses; effective sample size from observations is lower than actual observations due to weighting. All estimates include major crime suspected; day of the week; patrol shift; housing,

transit, or other location; gender of person stopped; age of person stopped; SQF based on radio run; precinct location. DR=doubly robust and includes all control variables and entropy weight. $***p < .01$

Figure 4 shows the estimates from the DR model for Black search rates compared to White/Other search rates over time. The figure shows that the search rates are for the most part comparable and rising between 2013 and 2019, with searches occurring in roughly 10 percent of stops in 2013, increasing to 36 percent of stops in 2019.

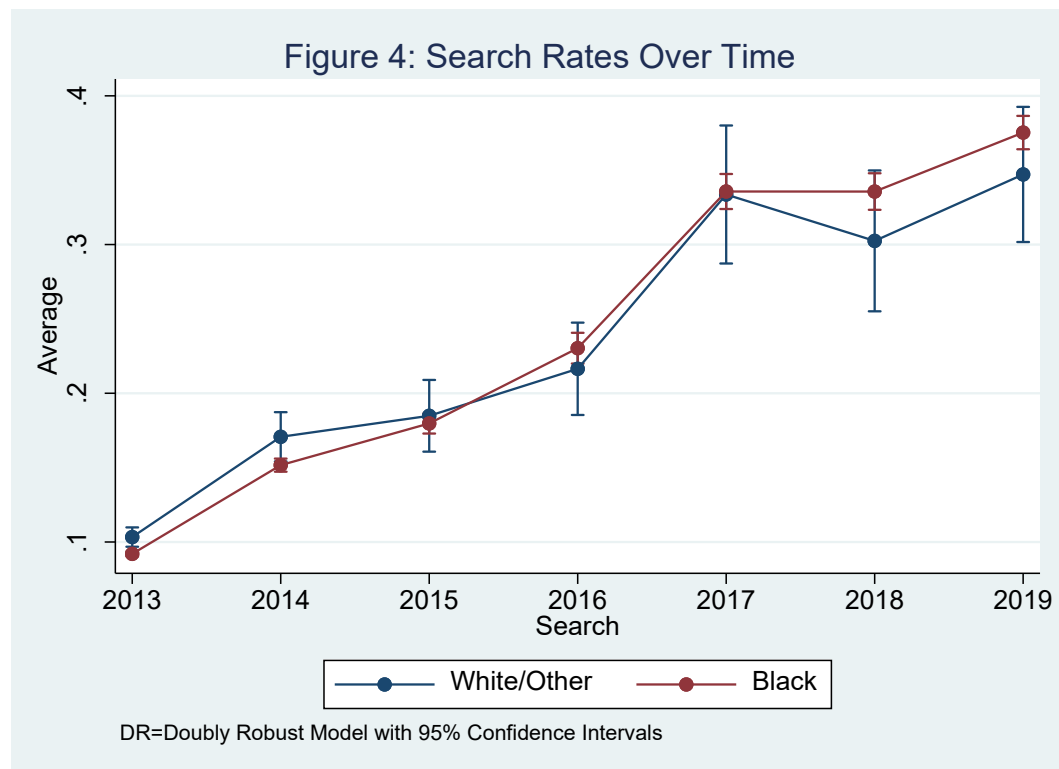


Table 8 shows the results for search rates for Blacks compared to similarly situated White/Others after (a) limiting the analysis to stops involving frisks; (b) adjusting for stops contexts to be similar to those that occurred in 2013 and (c) comparisons of searches assuming that undocumented stops occur at rates reported from CCRB complaints, RAND audits, and to the BWC experiment. The results show that among those that are frisked (column 1), Blacks are searched at lower rates compared Whites/Other races, though the estimates are imprecise and not

statistically significant in any year. For the analysis of cases adjusted for contexts similar to 2013, the estimates show Blacks have higher search rates in three out of four years, though the estimates are not statistically significant. When one assumes undocumented rates at thresholds seen in RAND audits and BWC experiment (but not the CCRB estimate), the disparities in search rates between Blacks and Whites/Others grow substantially as the level of assumed undocumented stops increases, to approximately a 5-9 percentage point (absolute) higher rate of searches for Blacks.

Table 8. Search of Blacks vs. Whites/Others Adjusting for Rates of Undocumented Stops, 2016-2019

Search	(1) Frisk	(2) 2013	(3) CCRB	(4) RAND	(5) BWC
2016					
White/Other Mean	0.340	0.215	0.203	0.152	0.147
Black Mean	0.297	0.237	0.222	0.190	0.187
Observations	5554	8723			
2017					
White/Other Mean	0.436	0.365	0.313	0.226	0.217
Black Mean	0.386	0.332	0.326	0.284	0.279
Observations	4350	7335			
2018					
White/Other Mean	0.470	0.314	0.284	0.206	0.198
Black Mean	0.394	0.357	0.325	0.284**	0.279**
Observations	4185	7027			
2019					
White/Other Mean	0.525	0.326	0.326	0.236	0.227
Black Mean	0.444	0.408	0.365	0.320**	0.315**
Observations	4929	8814			

Note: Effective sample size from observations is lower than actual observations due to weighting. Column 1 and 2 estimates include: entropy weight for comparability to 2013 stop contexts*entropy weight for White/Other to be similar to Black stops; major crime suspected; day of the week; patrol shift; housing, transit, or other location; gender of person stopped; age of person stopped; SQF based on radio run; precinct location. DR=doubly robust and includes all control variables and entropy weight. ** $p < .01$

Table 9 shows the results for search rates for Hispanic stop subjects compared to White/Other stop subjects. Between 2013 and 2019, Hispanic stop subjects had similar search rates when compared to similarly situated stop subjects from White/Other racial groups. The adjusted differences are on the order of 0 to 1 percentage point difference, suggesting that search rates are similar for Hispanics compared to Whites/Others in similar documented stop contexts.

Table 9. Search Rates for Hispanics vs. Whites/Others, 2013-2019

Search	(1) No Controls	(2) Controls	(3) DR
2013			
Hispanic (OR)	1.082** (0.0254)	0.933 (0.0251)	0.935 (0.0325)
White/Other Mean	0.096	0.110	0.110
Hispanic Mean	0.103	0.103	0.103
Observations	87402	87207	87207
2014			
Hispanic (OR)	1.426** (0.0543)	1.036 (0.0462)	1.005 (0.0643)
White/Other Mean	0.140	0.188	0.188
Hispanic Mean	0.188	0.188	0.188
Observations	21468	21352	21352
2015			
Hispanic (OR)	1.501** (0.0786)	1.247** (0.0763)	1.294** (0.109)
White/Other Mean	0.157	0.181	0.181
Hispanic Mean	0.218	0.219	0.219
Observations	10613	10549	10549
2016			
Hispanic (OR)	1.158 (0.0723)	1.013 (0.0758)	1.069 (0.104)
White/Other Mean	0.232	0.249	0.249
Hispanic Mean	0.259	0.262	0.262
Observations	5906	5836	5836
2017			
Hispanic (OR)	1.093 (0.0715)	1.122 (0.0933)	0.955 (0.127)
White/Other Mean	0.337	0.373	0.373
Hispanic Mean	0.357	0.366	0.366
Observations	5034	4628	4628
2018			
Hispanic (OR)	1.172 (0.0796)	1.220 (0.103)	1.252 (0.146)
White/Other Mean	0.321	0.324	0.324
Hispanic Mean	0.357	0.367	0.367
Observations	4767	4446	4446
2019			
Hispanic (OR)	1.023 (0.0623)	1.170 (0.0852)	1.128 (0.118)
White/Other Mean	0.385	0.379	0.379
Hispanic Mean	0.391	0.405	0.405
Observations	5478	5076	5076

Note: OR=Odds Ratio; standard errors in parentheses; effective sample size from observations is lower than actual observations due to weighting. Estimates in column 2 include major crime suspected; day of the week; patrol shift; housing, transit, or other location; gender of person stopped; age of person stopped; SQF based on radio run; precinct location. DR=doubly robust and includes all control variables and entropy weight. $**p < .01$

Figure 5 shows the search rates for Hispanic stop subjects compared to White/Other stop subjects over time taken from the DR estimates. The search rates are, for the most part, comparable between Hispanics and Whites/Others and rising between 2013 and 2019, from 10 percent of stops in 2013 to 39 percent of stops in 2019.

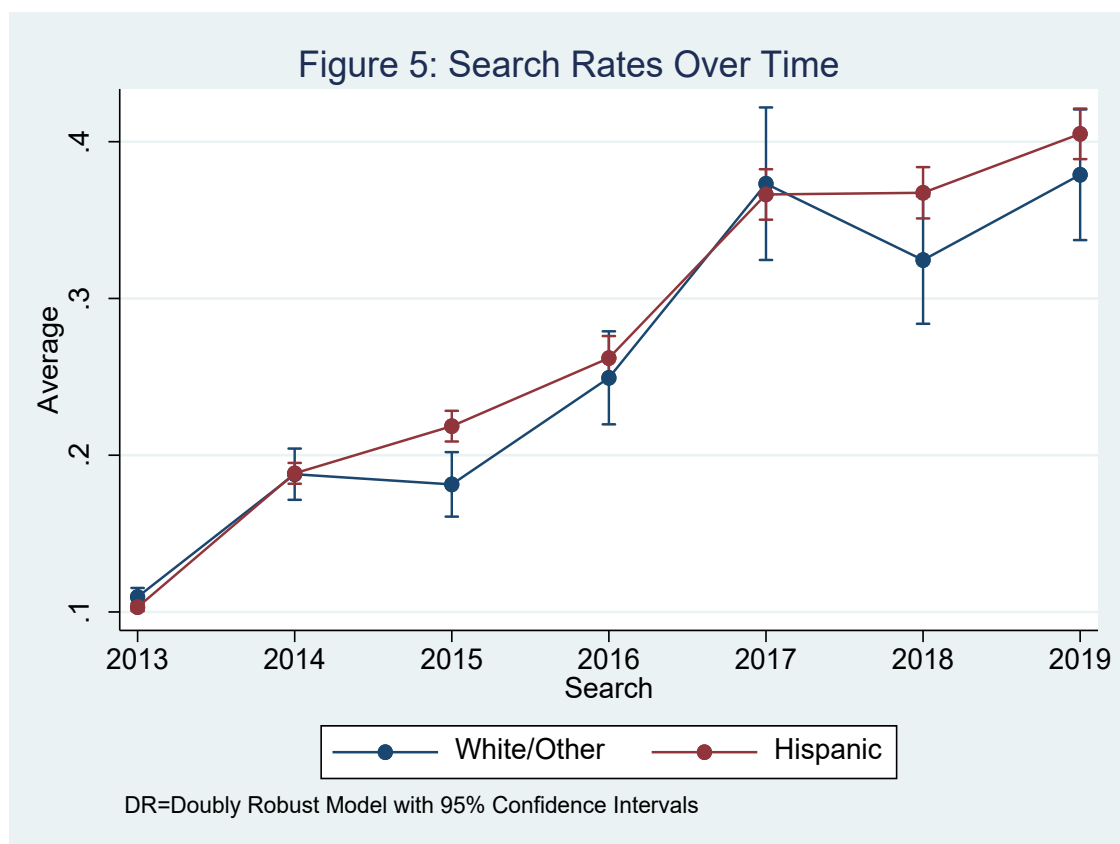


Table 10 shows the results for estimating Hispanic compared to White/Other racial groups on disparities in searches among those (a) that are frisked, (b) assuming stops occur in similar contexts to 2013, and (c) assuming undocumented stops occur at rates similar to CCRB, RAND, or BWC estimates. In most cases, the search rates are slightly lower for Hispanics. In 2018 and 2019, however, the search rates are marginally higher (4 to 6 percentage points absolute difference)

for Hispanics when the rate of undocumented stops is assumed to be at levels found in RAND and BWC audits. For 2018, the search rate disparities may be substantially impacted by the level of undocumented stops.

Table 10. Search Rates Hispanic vs. White/Other Adjusting for Rates of Undocumented Stops, 2016-2019

Search	(1) Frisk	(2) 2013	(3) CCRB	(4) RAND	(5) BWC
2016					
White/Other Mean	0.341	0.272	0.233	0.174	0.168
Hispanic Mean	0.337	0.282	0.247	0.193	0.188
Observations	3563	5836			
2017					
White/Other Mean	0.438	0.411	0.349	0.252	0.242
Hispanic Mean	0.405	0.376	0.348	0.275	0.268
Observations	2725	4628			
2018					
White/Other Mean	0.470	0.376	0.305	0.222	0.213
Hispanic Mean	0.434	0.400	0.350	0.276**	0.269**
Observations	2464	4446			
2019					
White/Other Mean	0.525	0.381	0.355	0.257	0.247
Hispanic Mean	0.474	0.419	0.385	0.301**	0.293**
Observations	2758	5076			

Note: Effective sample size from observations is lower than actual observations due to weighting. Column 1 and 2 estimates include: entropy weight for comparability to 2013 stop contexts*entropy weight for White/Other to be similar to Hispanic stops; major crime suspected; day of the week; patrol shift; housing, transit, or other location; gender of person stopped; age of person stopped; SQF based on radio run; precinct location. DR=doubly robust and includes all control variables and entropy weight. ** $p < .01$

C. Summons Disparities

Table 11 shows the results from a comparison of disparities in summons rates issued to Black stop subjects as compared to White/Other stop subjects. In 2013, the results show that Black stop subjects were significantly less likely to receive a summons relative to White/Other stop subjects, with an adjusted summons rate for Blacks that was 0.6 percentage points lower. In general, the year-to-year patterns between 2014 and 2019 show that the disparities in summons rates are small and usually not significantly different between Blacks and Whites/Others who were stopped overall or after adjusting for similar stop contexts. However, in 2019, the DR adjustment

suggests that Black subjects were 1.4 percentage points more likely to receive a summons during a stop relative to similarly situated White/Other subjects.

Table 11. Summons Rates for Blacks vs. Whites/Others, 2013-2019

Summons	(1) No Controls	(2) Controls	(3) DR
2013			
Black (OR)	0.877** (0.0298)	0.859** (0.0366)	0.834** (0.0556)
White/Other Mean	0.037	0.037	0.039
Black Mean	0.033	0.033	0.033
Observations	136921	136471	136471
2014			
Black (OR)	1.039 (0.0831)	0.882 (0.0879)	1.118 (0.145)
White/Other Mean	0.024	0.024	0.023
Black Mean	0.025	0.025	0.025
Observations	33298	32796	32796
2015			
Black (OR)	1.142 (0.133)	0.968 (0.137)	1.045 (0.226)
White/Other Mean	0.023	0.025	0.029
Black Mean	0.027	0.030	0.030
Observations	16064	14506	14506
2016			
Black (OR)	1.389 (0.218)	0.920 (0.171)	1.402 (0.297)
White/Other Mean	0.022	0.026	0.026
Black Mean	0.031	0.035	0.035
Observations	8778	7617	7617
2017			
Black (OR)	0.983 (0.157)	0.707 (0.142)	0.586 (0.162)
White/Other Mean	0.034	0.041	0.059
Black Mean	0.033	0.037	0.037
Observations	8062	6660	6660
2018			
Black (OR)	1.178 (0.230)	0.890 (0.211)	1.212 (0.323)
White/Other Mean	0.023	0.032	0.028
Black Mean	0.027	0.033	0.033
Observations	7619	5658	5658
2019			
Black (OR)	1.524 (0.294)	1.393 (0.332)	2.491** (0.584)

White/Other Mean	0.019	0.025	0.020
Black Mean	0.029	0.034	0.034
Observations	9590	7675	7675

Note: OR=Odds Ratio; standard errors in parentheses; effective sample size from observations is lower than actual observations due to weighting. Estimates in column 2 include major crime suspected; day of the week; patrol shift; housing, transit, or other location; gender of person stopped; age of person stopped; SQF based on radio run; precinct location. DR=doubly robust and includes all control variables and entropy weight. $**p < .01$

Figure 6 shows the visualization of the year-to-year differences in summons rates between Blacks and White/Other subjects stopped under similar contexts. The results show that 2019 is the only year in which the summons rate was significantly higher for Blacks compared to Whites/Others stopped in the same context.

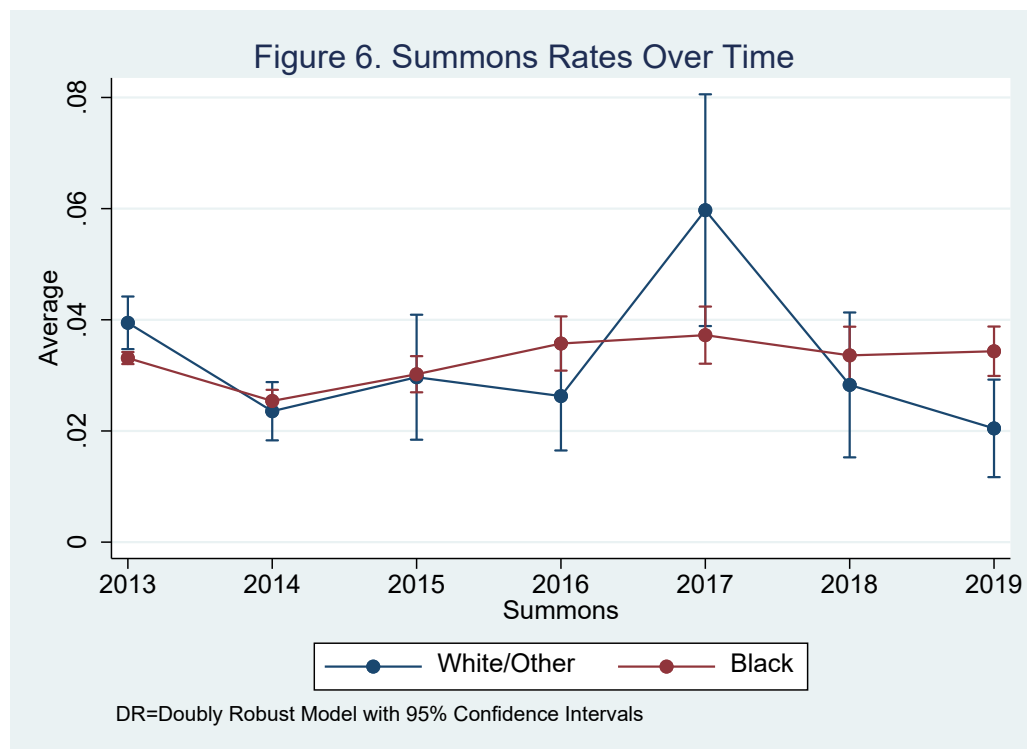


Table 12 shows the results for estimating Black compared to White/Other racial groups on disparities in summons rates among (a) those that are frisked, (b) assuming stops occur in similar contexts to 2013, and (c) assuming undocumented stops occur at rates similar to CCRB, RAND, or BWC estimates. The results show that among those that are frisked, summons rates are not

significantly different between Black and White/Other groups, and that disparities appear to be largely unaffected by assumptions about undocumented stops.

Table 12. Summons Rates for Blacks vs. Whites/Others Given Frisk, or Adjusting for Rate of Undocumented Stops, 2016-2019

	(1) Frisk	(2) 2013	(3) CCRB	(4) RAND	(5) BWC
Summons					
2016					
White/Other Mean	0.036	0.020	0.022	0.016	0.016
Black Mean	0.045	0.035	0.030	0.026	0.025
Observations	4872	7617			
2017					
White/Other Mean	0.064	0.042	0.051	0.037	0.035
Black Mean	0.050	0.038	0.033	0.029	0.029
Observations	3810	6660			
2018					
White/Other Mean	0.058	0.020	0.022	0.016	0.015
Black Mean	0.043	0.032	0.027	0.023	0.023
Observations	3302	5658			
2019					
White/Other Mean	0.037	0.021	0.017	0.012	0.012
Black Mean	0.046	0.042	0.030	0.026	0.026
Observations	4093	7675			

Note: Effective sample size from observations is lower than actual observations due to weighting. Column 2 estimates include: entropy weight for comparability to 2013 stop contexts*entropy weight for White/Other to be similar to Black stops; major crime suspected; day of the week; patrol shift; housing, transit, or other location; gender of person stopped; age of person stopped; SQF based on radio run; precinct location. DR=doubly robust and includes all control variables and entropy weight. ** $p < .01$

Table 13 shows the results from a comparison of disparities in summons rates over time between Hispanic stop subjects and White/Other stop subjects. The results show adjusted summons rates for Hispanics were not significantly different than summons rates for White/Other groups stopped in similar contexts. The differences that exist are on the order of less than 1 percentage point.

Table 13. Summons Rates for Hispanics vs. Whites/Others, 2013-2019

	(1) No Controls	(2) Controls	(3) DR
Summons			
2013			
Hispanic (OR)	1.098 (0.0398)	1.048 (0.0432)	0.995 (0.0563)
White/Other Mean	0.0375	0.0413	0.0413

Hispanic Mean	0.0411	0.0411	0.0411
Observations	87402	87207	87207
2014			
Hispanic (OR)	1.291** (0.111)	1.168 (0.116)	1.085 (0.134)
White/Other Mean	0.0242	0.0303	0.0303
Hispanic Mean	0.0310	0.0327	0.0327
Observations	21468	20329	20329
2015			
Hispanic (OR)	1.074 (0.139)	0.946 (0.145)	0.840 (0.180)
White/Other Mean	0.0238	0.0366	0.0366
Hispanic Mean	0.0255	0.0293	0.0293
Observations	10613	9349	9349
2016			
Hispanic (OR)	1.353 (0.230)	1.138 (0.227)	1.066 (0.268)
White/Other Mean	0.0228	0.0373	0.0373
Hispanic Mean	0.0306	0.0384	0.0384
Observations	5906	4753	4753
2017			
Hispanic (OR)	1.012 (0.173)	0.916 (0.199)	0.823 (0.229)
White/Other Mean	0.0341	0.0524	0.0524
Hispanic Mean	0.0345	0.0427	0.0427
Observations	5034	3758	3758
2018			
Hispanic (OR)	1.148 (0.239)	0.810 (0.212)	0.849 (0.232)
White/Other Mean	0.0232	0.0450	0.0450
Hispanic Mean	0.0266	0.0348	0.0348
Observations	4767	3306	3306
2019			
Hispanic (OR)	1.212 (0.255)	1.026 (0.275)	1.062 (0.305)
White/Other Mean	0.0193	0.0371	0.0371
Hispanic Mean	0.0233	0.0354	0.0354
Observations	5478	3154	3154

Note: OR=Odds Ratio; standard errors in parentheses; effective sample size from observations is lower than actual observations due to weighting. All estimates include major crime suspected; day of the week; patrol shift; housing, transit, or other location; gender of person stopped; age of person stopped; SQF based on radio run; precinct location. DR=doubly robust and includes all control variables and entropy weight. ** $p < .01$

Figure 7 shows that summons rates between Hispanics and Whites/Others stopped in similar contexts are statistically indistinguishable from each other over time.

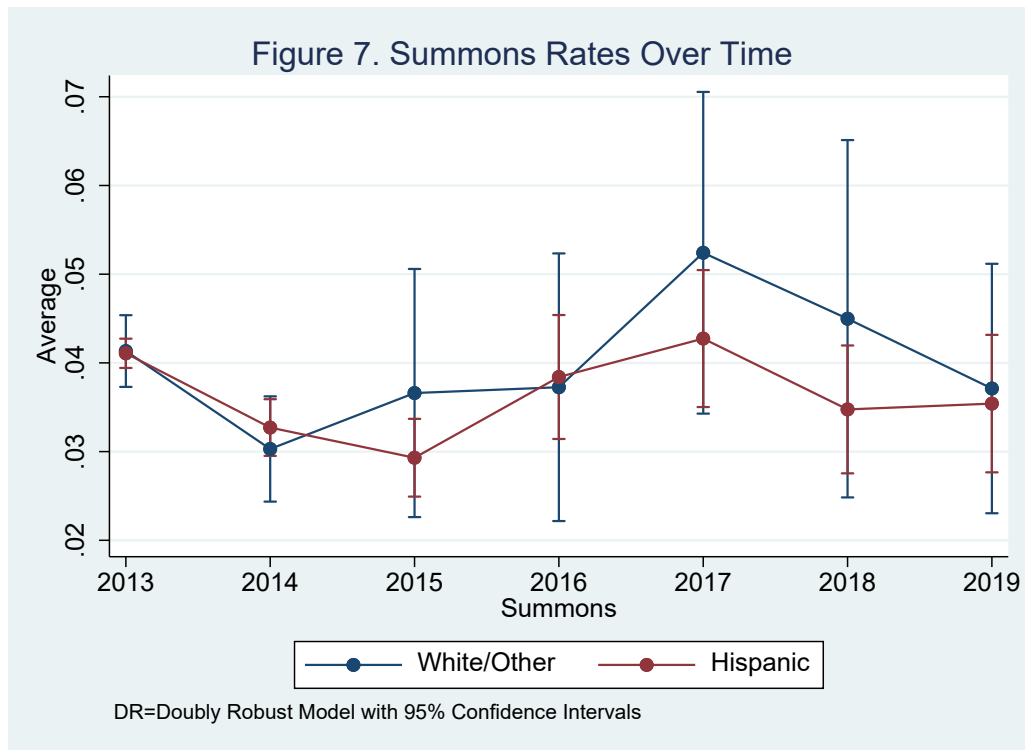


Table 14 shows the results for estimating Hispanic compared to White/Other racial groups for disparities in summons rates, among those (a) who are frisked, (b) assuming stops occur in similar contexts to 2013, and (c) assuming undocumented stops occur at rates similar to CCRB, RAND, or BWC estimates. The results show that among those that are frisked, summons rates are not significantly different between Hispanics and White/Other groups and the disparities appear to be largely unaffected by assumptions about undocumented stops.

Table 14. Summons Rates for Hispanics vs. Whites/Others Given Frisk, or Adjusting for Rate of Undocumented Stops, 2016-2019

	(1)	(2)	(3)	(4)	(5)
Summons	Frisk	2013	CCRB	RAND	BWC
2016					
White/Other Mean	0.0388	0.0511	0.028	0.021	0.020
Hispanic Mean	0.0483	0.0358	0.029	0.023	0.022
Observations	2808	4753			
2017					
White/Other Mean	0.0726	0.0443	0.041	0.029	0.028
Hispanic Mean	0.0593	0.0434	0.034	0.027	0.026

Observations	1959	3758			
2018					
White/Other Mean	0.0714	0.0338	0.034	0.025	0.024
Hispanic Mean	0.0439	0.0452	0.026	0.021	0.020
Observations	1682	3306			
2019					
White/Other Mean	0.0444	0.0472	0.023	0.016	0.016
Hispanic Mean	0.0515	0.0425	0.022	0.017	0.017
Observations	1701	3154			

Note: Effective sample size from observations is lower than actual observations due to weighting. Column 1 estimates include: entropy weight for comparability to 2013 stop contexts*entropy weight for White/Other to be similar to Hispanic stops; major crime suspected; day of the week; patrol shift; housing, transit, or other location; gender of person stopped; age of person stopped; SQF based on radio run; precinct location. DR=doubly robust and includes all control variables and entropy weight. ** $p < .01$

D. Arrest Disparities

Table 15 shows the results for disparities in arrests for Blacks compared to Whites/Others before and after adjusting for stop context each year. The rate of arrest for Blacks stopped by the NYPD ranges from a low of 7.3 percent in 2013 to a high of 31.3 percent in 2019, and is similar to the rate for Whites/Others in unadjusted and adjusted comparisons. The one exception is 2018, when the arrest rate for Blacks appears to be 7.6 percentage points higher than for similarly situated White/Other groups.

Table 15. Arrest Rates for Blacks, 2013-2019			
	(1)	(2)	(3)
Arrest	No Controls	Controls	DR
2013			
Black (OR)	0.892** (0.0210)	1.008 (0.0291)	0.928 (0.0416)
White/Other Mean	0.0815	0.0816	0.0790
Black Mean	0.0733	0.0734	0.0734
Observations	136921	136471	136471
2014			
Black (OR)	1.158** (0.0427)	0.954 (0.0461)	0.950 (0.0740)
White/Other Mean	0.125	0.125	0.147
Black Mean	0.142	0.142	0.142
Observations	33298	33138	33138
2015			
Black (OR)	1.292**	1.067	0.886

	(0.0670)	(0.0697)	(0.0973)
White/Other Mean	0.134	0.134	0.183
Black Mean	0.167	0.167	0.167
Observations	16064	15977	15977
2016			
Black (OR)	1.077	1.061	1.009
	(0.0666)	(0.0835)	(0.119)
White/Other Mean	0.189	0.189	0.200
Black Mean	0.201	0.202	0.202
Observations	8778	8723	8723
2017			
Black (OR)	0.921	1.137	1.199
	(0.0582)	(0.0917)	(0.162)
White/Other Mean	0.299	0.313	0.265
Black Mean	0.282	0.297	0.297
Observations	8062	7315	7315
2018			
Black (OR)	1.024	1.335**	1.623**
	(0.0686)	(0.110)	(0.204)
White/Other Mean	0.269	0.282	0.214
Black Mean	0.274	0.290	0.290
Observations	7619	7027	7027
2019			
Black (OR)	0.944	1.215**	1.137
	(0.0551)	(0.0856)	(0.136)
White/Other Mean	0.326	0.333	0.309
Black Mean	0.313	0.334	0.334
Observations	9590	8814	8814

Note: OR=Odds Ratio; standard errors in parentheses; effective sample size from observations is lower than actual observations due to weighting. Estimates in column 2 include major crime suspected; day of the week; patrol shift; housing, transit, or other location; gender of person stopped; age of person stopped; SQF based on radio run; precinct location. DR=doubly robust and includes all control variables and entropy weight. ** $p < .01$

Figure 8 shows the year-to-year adjusted Black arrest rate compared to the White/Other arrest rate, and indicates that 2018 is the only year with a visual disparity in arrest rates.

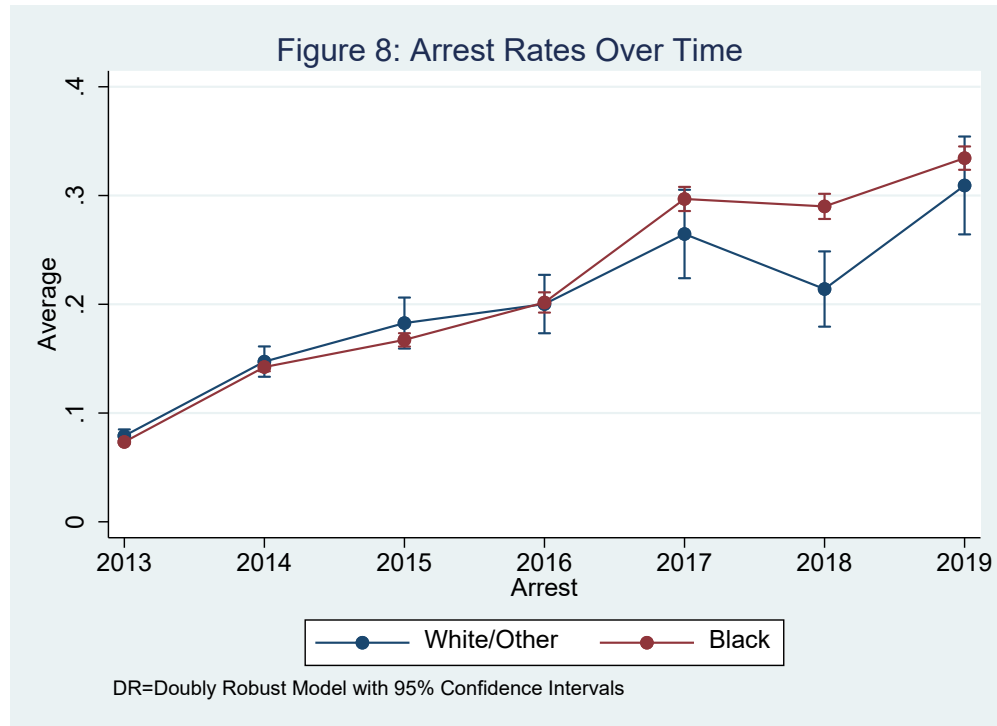


Table 16 shows the results for disparities in arrest rates between Blacks and White/Other groups for stops with frisks, adjusted for 2013 contexts, as well as different assumptions about undocumented stops. The results show that in 2017 to 2019, as the rate of undocumented stops is assumed to be larger, the disparity in arrest rates grows. The results suggest that undocumented stops may have a consequence on racial disparities in arrests among those stopped by the NYPD.

Table 16. Arrest Rates for Blacks vs. Whites/Others Given Frisk or Adjusting for Rate of Undocumented Stops, 2016-2019

Arrest	(1) Frisk	(2) 2013	(2) CCRB	(3) RAND	(4) BWC
2016					
White/Other Mean	0.228	0.298	0.188	0.141	0.136
Black Mean	0.217	0.240	0.194	0.166	0.163
Observations	5536	8723			
2017					
White/Other Mean	0.323	0.267	0.247	0.178	0.171
Black Mean	0.289	0.276	0.287	0.250**	0.246**
Observations	4340	7315			
2018					
White/Other Mean	0.308	0.276	0.201	0.146	0.140

Black Mean	0.292	0.289	0.281	0.245**	0.241**
Observations	4185	7027			
2019					
White/Other Mean	0.369	0.284	0.290	0.210	0.202
Black Mean	0.327	0.318	0.325	0.285**	0.281**
Observations	4922	8814			

Note: Effective sample size from observations is lower than actual observations due to weighting. Column 1 estimates include: entropy weight for comparability to 2013 stop contexts*entropy weight for White/Other to be similar to Black stops; major crime suspected; day of the week; patrol shift; housing, transit, or other location; gender of person stopped; age of person stopped; SQF based on radio run; precinct location. DR=doubly robust and includes all control variables and entropy weight. ** $p < .01$

Table 17 shows the results from an analysis of disparities in arrest rates between Hispanics and White/Other groups. In general, the rates of arrest are similar between groups, with the exception of 2015 (2.9 percentage point higher) and 2018, where there appears to be a 6.8 percentage point higher rate of arrest for Hispanics compared to White/Other groups stopped in similar contexts.

Table 17. Arrest Rates for Hispanics, 2013-2019			
Arrest	(1) No Controls	(2) Controls	(3) DR
2013			
Hispanic (OR)	1.165** (0.0292)	0.949 (0.0274)	1.000 (0.0373)
White/Other Mean	0.0815	0.0937	0.0937
Hispanic Mean	0.0936	0.0936	0.0936
Observations	87402	87207	87207
2014			
Hispanic (OR)	1.608** (0.0632)	1.036 (0.0513)	1.039 (0.0725)
White/Other Mean	0.125	0.184	0.184
Hispanic Mean	0.187	0.187	0.187
Observations	21468	21387	21387
2015			
Hispanic (OR)	1.809** (0.0990)	1.272** (0.0852)	1.268** (0.114)
White/Other Mean	0.134	0.191	0.191
Hispanic Mean	0.219	0.220	0.220
Observations	10613	10523	10523
2016			
Hispanic (OR)	1.433** (0.0943)	1.206 (0.0990)	1.218 (0.131)
White/Other Mean	0.189	0.223	0.223

Hispanic Mean	0.250	0.252	0.252
Observations	5906	5854	5854
2017			
Hispanic (OR)	1.130 (0.0760)	1.236 (0.108)	1.086 (0.157)
White/Other Mean	0.299	0.322	0.322
Hispanic Mean	0.325	0.338	0.338
Observations	5034	4624	4624
2018			
Hispanic (OR)	1.193 (0.0851)	1.320** (0.118)	1.606** (0.189)
White/Other Mean	0.269	0.240	0.240
Hispanic Mean	0.305	0.318	0.318
Observations	4767	4430	4430
2019			
Hispanic (OR)	1.030 (0.0651)	1.257** (0.0956)	1.091 (0.131)
White/Other Mean	0.326	0.328	0.328
Hispanic Mean	0.332	0.348	0.348
Observations	5478	5067	5067

Note: OR=Odds Ratio; standard errors in parentheses; effective sample size from observations is lower than actual observations due to weighting. Estimates in column 2 include major crime suspected; day of the week; patrol shift; housing, transit, or other location; gender of person stopped; age of person stopped; SQF based on radio run; precinct location. DR=doubly robust and includes all control variables and entropy weight. ** $p < .01$

Figure 9 shows estimates from the DR model of arrest rates between Hispanics and White/Others stopped in similar contexts. In general, arrest rates rise over time between 2013 and 2019. A significant but small disparity occurs in 2015, and a significant but larger disparity occurs in 2018 with a higher rate of arrest for Hispanics.

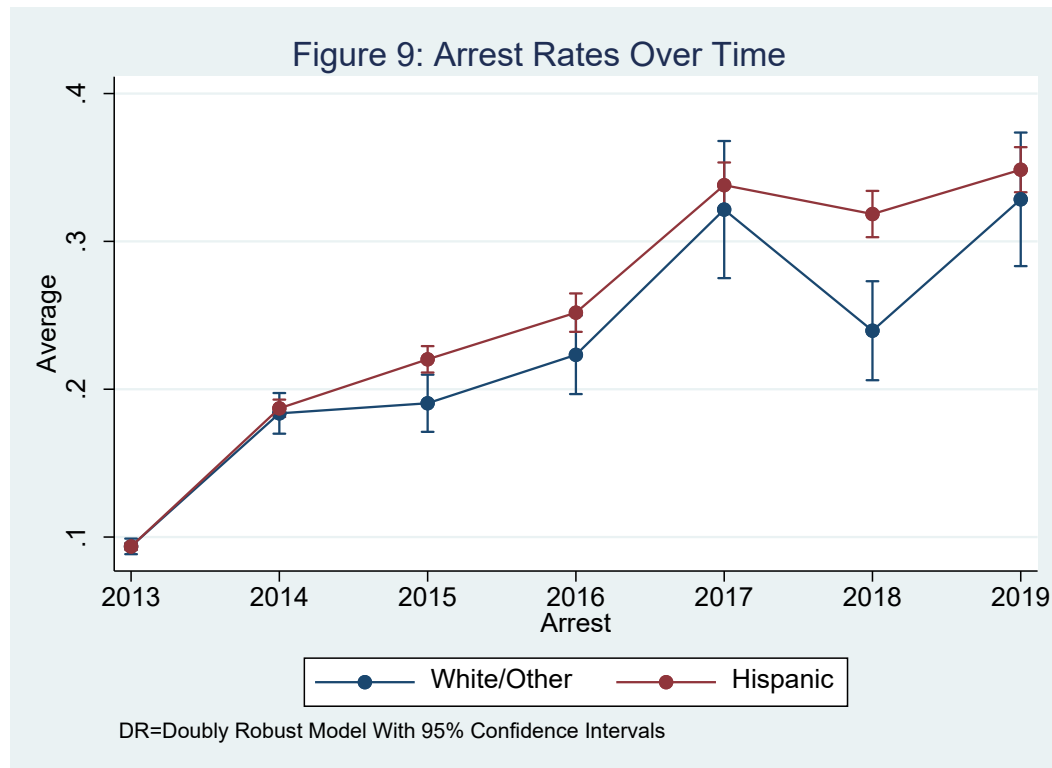


Table 18 shows the results for arrest disparities between Hispanics and Whites/Others (a) for stops with frisks, (b) adjusted for 2013 contexts, and (c) after adjusting for the assumed rate of undocumented stops. For 2018, the rate of undocumented stops could increase estimated disparities in arrest rates for Hispanics compared to similarly situated Whites/Others, although the estimated disparities do not appear to be statistically significant in 2019.

Table 18. Arrest Rates for Hispanics vs. Whites/Others Given Frisk or Adjusting for Rate of Undocumented Stops, 2016-2019

Arrest	(1) Frisk	(2) 2013	(3) CCRB	(4) RAND	(5) BWC
2016					
White/Other Mean	0.230	0.277	0.210	0.157	0.151
Hispanic Mean	0.293	0.288	0.238	0.187	0.181
Observations	3561	5854			
2017					
White/Other Mean	0.323	0.366	0.301	0.217	0.208
Hispanic Mean	0.322	0.332	0.321	0.254	0.247
Observations	2735	4624			
2018					
White/Other Mean	0.315	0.331	0.224	0.163	0.157

Hispanic Mean	0.325	0.336	0.302**	0.239**	0.232**
Observations	2437	4430			
2019					
White/Other Mean	0.368	0.349	0.308	0.223	0.214
Hispanic Mean	0.347	0.347	0.331	0.259	0.252
Observations	2752	5067			

Note: Effective sample size from observations is lower than actual observations due to weighting. Column 1 estimates include: entropy weight for comparability to 2013 stop contexts*entropy weight for White/Other to be similar to Black or Hispanic stops; major crime suspected; day of the week; patrol shift; housing, transit, or other location; gender of person stopped; age of person stopped; SQF based on radio run; precinct location. DR=doubly robust and includes all control variables and entropy weight. ** $p < .01$

E. Use of Force Disparities

Table 19 shows the results from an analysis of disparities in use of force rates between Blacks and White/Other groups. In general, the use of force rates are higher for Blacks compared to Whites/Others stopped in similar contexts, with the exception of 2015 when they are lower, and the adjusted disparity is on average around 2-3 percentage points, which is not statistically significant in all years aside from 2013, when the total volume of recorded stops was substantially higher.

Table 19. Use of Force Rates for Blacks, 2013-2019

	(1)	(2)	(3)
Force	No Controls	Controls	DR
2013			
Black (OR)	1.280** (0.0246)	1.238** (0.0289)	1.187** (0.0429)
White/Other Mean	0.119	0.119	0.129
Black Mean	0.147	0.147	0.147
Observations	136921	136471	136471
2014			
Black (OR)	1.331** (0.0432)	1.125** (0.0455)	1.116 (0.0723)
White/Other Mean	0.165	0.166	0.193
Black Mean	0.209	0.209	0.209
Observations	33298	33196	33196
2015			
Black (OR)	1.531** (0.0666)	1.049 (0.0554)	0.899 (0.0727)
White/Other Mean	0.206	0.206	0.303
Black Mean	0.285	0.284	0.284
Observations	16064	15977	15977

2016			
Black (OR)	1.860** (0.118)	1.268** (0.0966)	1.225 (0.131)
White/Other Mean	0.161	0.162	0.231
Black Mean	0.263	0.263	0.263
Observations	8778	8723	8723
2017			
Black (OR)	1.174 (0.0851)	1.090 (0.0948)	1.174 (0.160)
White/Other Mean	0.194	0.196	0.205
Black Mean	0.220	0.223	0.223
Observations	8062	7335	7335
2018			
Black (OR)	1.026 (0.0745)	1.059 (0.0931)	1.218 (0.163)
White/Other Mean	0.213	0.215	0.196
Black Mean	0.217	0.222	0.222
Observations	7619	7031	7031
2019			
Black (OR)	1.068 (0.0719)	1.038 (0.0829)	1.188 (0.144)
White/Other Mean	0.206	0.212	0.200
Black Mean	0.217	0.222	0.222
Observations	9590	8814	8814

Note: OR=Odds Ratio; standard errors in parentheses; effective sample size from observations is lower than actual observations due to weighting. Estimates in column 2 include major crime suspected; day of the week; patrol shift; housing, transit, or other location; gender of person stopped; age of person stopped; SQF based on radio run; precinct location. DR=doubly robust and includes all control variables and entropy weight. ** $p < .01$

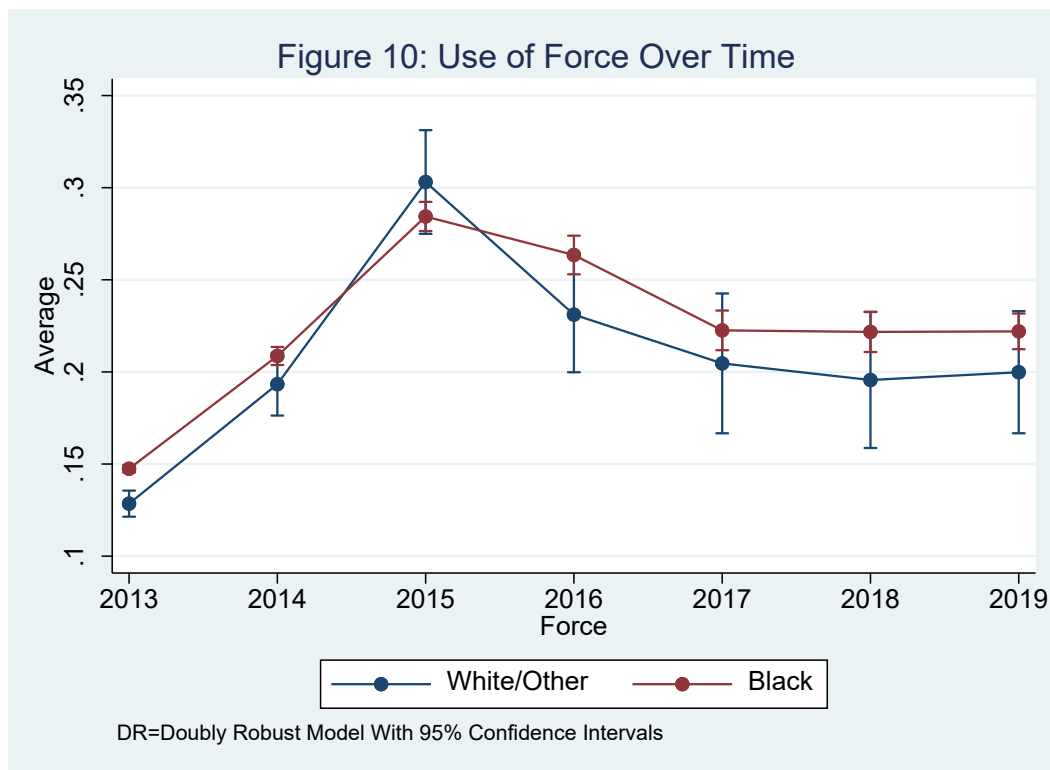


Figure 10 shows estimates from the DR model of use of force rates between Blacks and Whites/Others stopped in similar contexts. The graph shows that use of force rates increase as the number of total stops recorded dropped from 2013 to 2015, suggesting that recorded stops are on average more serious in nature in 2014 and 2015 than in 2013. Figure 10 also shows that the adjusted disparities in use of force rates have overlapping confidence intervals, with the exception of 2013, meaning that 95 percent of the time one cannot rule out that there was no difference in use of force between Blacks and Whites/Others stopped in similar context.

Table 20 shows the results for use of force disparities between Blacks and White/Others (a) who were frisked, (b) adjusted for 2013 contexts, and (c) after adjusting for the assumed rate of undocumented stops. For all years 2016 to 2019, the rate of undocumented stops at levels comparable to RAND and BWC estimates (but not CCRB estimates) could increase disparities in use of force rates for Blacks compared to similarly situated Whites/Others.

Table 20. Use of Force Rates for Blacks Adjusting for Rate of Undocumented Stops, 2016-2019

Force	(1) Frisk	(2) 2013	(3) CCRB	(4) RAND	(5) BWC
2016					
White/Other Mean	0.224	0.187	0.217	0.162	0.157
Black Mean	0.319	0.281	0.254	0.217**	0.213**
Observations	5554	8723			
2017					
White/Other Mean	0.292	0.211	0.192	0.138	0.133
Black Mean	0.274	0.241	0.216	0.188	0.185**
Observations	4348	7335			
2018					
White/Other Mean	0.333	0.227	0.184	0.134	0.128
Black Mean	0.262	0.218	0.215	0.187**	0.185**
Observations	4178	7031			
2019					
White/Other Mean	0.306	0.201	0.187	0.136	0.130
Black Mean	0.268	0.232	0.216	0.189**	0.187**
Observations	4929	8814			

Note: Effective sample size from observations is lower than actual observations due to weighting. Column 2 estimates include: entropy weight for comparability to 2013 stop contexts*entropy weight for White/Other to be similar to Black stops; major crime suspected; day of the week; patrol shift; housing, transit, or other location; gender of person stopped; age of person stopped; SQF based on radio run; precinct location. DR=doubly robust and includes all control variables and entropy weight. ** $p < .01$

Table 21 shows the results from an analysis of disparities in use of force rates between Hispanics and Whites/Others. In general, the adjusted rates of use of force are similar between groups, reflecting differences of less than 2 percentage points. For 2013, the difference is statistically significant because the overall number of recorded stops is substantially higher, so the estimated difference of 1.3 percentage points is statistically significant, even though it is in the same range as other estimates of differences of 0.5 to 2 percentage points.

Table 21. Use of Force Rates for Hispanics, 2013-2019

Force	(1) No Controls	(2) Controls	(3) DR
2013			
Hispanic (OR)	1.468** (0.0303)	1.100** (0.0263)	1.099** (0.0356)
White/Other Mean	0.119	0.153	0.153
Hispanic Mean	0.166	0.166	0.166

Observations	87402	87207	87207
2014			
Hispanic (OR)	1.665** (0.0585)	1.127** (0.0469)	1.156 (0.0714)
White/Other Mean	0.165	0.223	0.223
Hispanic Mean	0.248	0.248	0.248
Observations	21468	21415	21415
2015			
Hispanic (OR)	1.650** (0.0777)	1.171** (0.0643)	1.019 (0.0788)
White/Other Mean	0.206	0.296	0.296
Hispanic Mean	0.300	0.301	0.301
Observations	10613	10565	10565
2016			
Hispanic (OR)	1.631** (0.113)	1.130 (0.0925)	1.103 (0.115)
White/Other Mean	0.161	0.224	0.224
Hispanic Mean	0.238	0.239	0.239
Observations	5906	5875	5875
2017			
Hispanic (OR)	1.048 (0.0819)	1.130 (0.109)	1.071 (0.160)
White/Other Mean	0.194	0.198	0.198
Hispanic Mean	0.201	0.206	0.206
Observations	5034	4621	4621
2018			
Hispanic (OR)	0.957 (0.0750)	0.953 (0.0925)	1.009 (0.130)
White/Other Mean	0.213	0.211	0.211
Hispanic Mean	0.205	0.211	0.211
Observations	4767	4446	4446
2019			
Hispanic (OR)	0.936 (0.0690)	0.873 (0.0766)	0.875 (0.107)
White/Other Mean	0.206	0.222	0.222
Hispanic Mean	0.196	0.200	0.200
Observations	5478	5076	5076

Note: OR=Odds Ratio; standard errors in parentheses; effective sample size from observations is lower than actual observations due to weighting. Estimates in column 2 include major crime suspected; day of the week; patrol shift; housing, transit, or other location; gender of person stopped; age of person stopped; SQF based on radio run; precinct location. DR=doubly robust and includes all control variables and entropy weight. ** $p < .01$

Figure 11 shows estimates from the DR model of use of force rates between Hispanics and White/Others stopped in similar contexts. The graph shows that estimated use of force rates rise between 2013 and 2015 and then subsequently decline. Figure 11 shows that the adjusted

disparities in use of force rates have overlapping confidence intervals for every year other than 2013, meaning that one cannot rule out that 95 percent of the time, there is no difference in use of force rates between Hispanics and Whites/Others stopped in similar contexts.

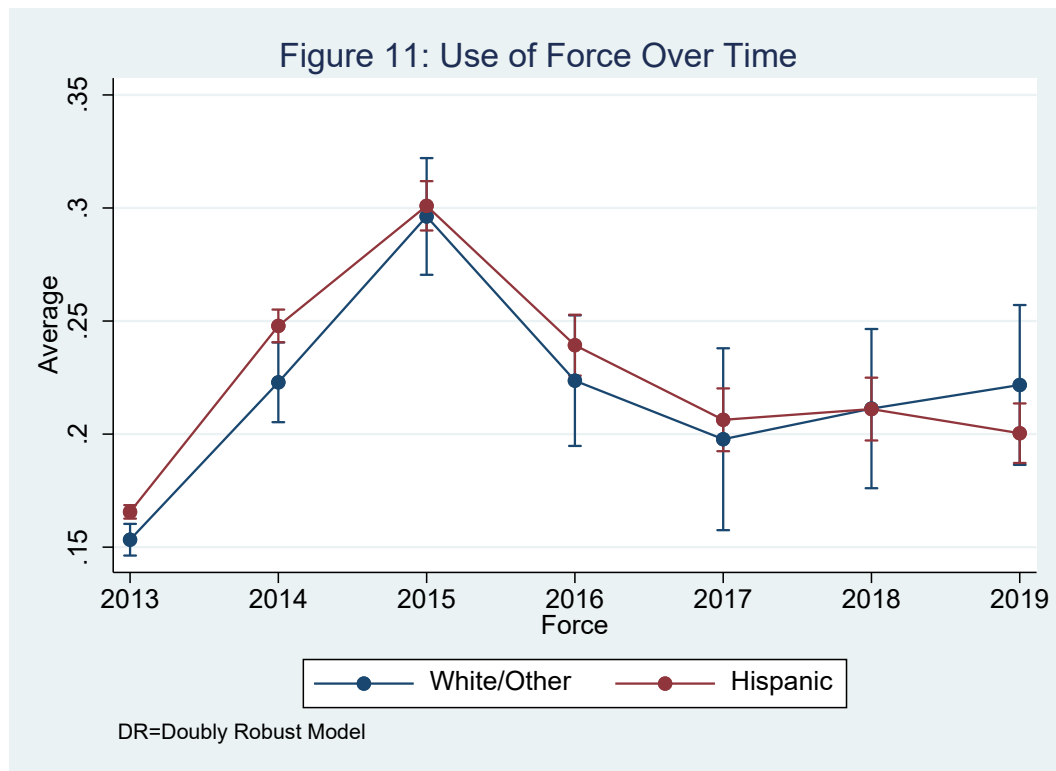


Table 22 shows the results for use of force disparities between Hispanics and Whites/Others (a) who are frisked, (b) adjusted for 2013 contexts, and (c) after adjusting for the assumed rate of undocumented stops. The rates of assumed undocumented stops have minimal effect on disparities in use of force rates for Hispanics compared to similarly situated Whites/Others.

Table 22. Use of Force Rates for Hispanics Adjusting for
Rate of Undocumented Stops, 2016-2019

	(1) Frisk	(2) 2013	(3) CCRB	(4) RAND	(5) BWC
Force					
2016					
White/Other Mean	0.224	0.202	0.210	0.157	0.152

Hispanic Mean	0.309	0.258	0.227	0.178	0.173
Observations	3583	5875			
2017					
White/Other Mean	0.293	0.233	0.185	0.133	0.128
Hispanic Mean	0.238	0.208	0.196	0.155	0.150
Observations	2736	4621			
2018					
White/Other Mean	0.337	0.197	0.198	0.144	0.139
Hispanic Mean	0.264	0.193	0.201	0.159	0.154
Observations	2458	4446			
2019					
White/Other Mean	0.307	0.229	0.208	0.151	0.145
Hispanic Mean	0.244	0.178	0.190	0.149	0.145
Observations	2756	5076			

Note: Effective sample size from observations is lower than actual observations due to weighting. Column 2 estimates include: entropy weight for comparability to 2013 stop contexts*entropy weight for White/Other to be similar to Black or Hispanic stops; major crime suspected; day of the week; patrol shift; housing, transit, or other location; gender of person stopped; age of person stopped; SQF based on radio run; precinct location. DR=doubly robust and includes all control variables and entropy weight. $**p < .01$

F. Hit Rate Disparities

Table 23 shows the disparities for Black subjects compared to White/Other subjects stopped in similar contexts on frisks and searches that led to the finding of contraband or weapons (hit rates). A finding of a substantially lower hit rate for Black stop subjects relative to White/Other stop subjects would suggest a concerning racial disparity, as this indicates the threshold for searching someone was lower for Blacks.

The hit rates for contraband for Blacks compared to Whites/Others stopped under similar contexts is higher or lower in different years, but these differences achieve statistical significance only in 2018 and show a higher hit rate for Blacks. In general, the results indicate that yearly contraband hit rates for Blacks relative to White/Others are similar.

Table 23. DR Hit Rates for Blacks Compared to Whites/Others, 2013-2019

	Frisk		Search	
	(1)	(2)	(3)	(4)
	Contraband	Weapon	Contraband	Weapons
2013				
Black (OR)	0.986 (0.0923)	0.619** (0.0475)	1.087 (0.129)	0.840 (0.0842)

White/Other Mean	0.028	0.051	0.131	0.188
Black Mean	0.027	0.026	0.141	0.133
Observations	79575	79575	12658	12684
2014				
Black (OR)	0.887 (0.123)	0.599** (0.0888)	0.962 (0.151)	0.919 (0.151)
White/Other Mean	0.045	0.066	0.146	0.192
Black Mean	0.042	0.037	0.155	0.134
Observations	21977	21977	4891	4888
2015				
Black (OR)	0.754 (0.122)	0.596** (0.107)	0.736 (0.146)	0.698 (0.135)
White/Other Mean	0.065	0.095	0.180	0.270
Black Mean	0.053	0.059	0.168	0.192
Observations	10653	10626	2714	2743
2016				
Black (OR)	1.606 (0.355)	0.666 (0.124)	1.215 (0.267)	0.626 (0.139)
White/Other Mean	0.045	0.101	0.134	0.271
Black Mean	0.073	0.073	0.189	0.201
Observations	5231	5424	1931	1917
2017				
Black (OR)	1.059 (0.181)	0.969 (0.204)	0.829 (0.141)	0.686 (0.143)
White/Other Mean	0.212	0.152	0.415	0.285
Black Mean	0.193	0.131	0.370	0.226
Observations	4305	4224	2475	2420
2018				
Black (OR)	2.008** (0.386)	2.101** (0.490)	1.420 (0.272)	1.666 (0.402)
White/Other Mean	0.120	0.079	0.301	0.170
Black Mean	0.209	0.139	0.380	0.239
Observations	4174	4065	2350	2292
2019				
Black (OR)	1.181 (0.217)	1.362 (0.320)	0.824 (0.141)	0.818 (0.173)
White/Other Mean	0.172	0.105	0.382	0.251
Black Mean	0.206	0.147	0.355	0.234
Observations	4922	4861	3326	3232

Note: OR=Odds Ratios; standard errors in parentheses; effective sample size from observations is lower than actual observations due to weighting. DR=doubly robust and includes all control variables and entropy weight. Control variables include major crime suspected; day of the week; patrol shift; housing, transit, or other location; gender of person stopped; age of person stopped; SQF based on radio run; precinct location.

The hit rates for weapons shows that Blacks subjected to frisks or searches in similar contexts as Whites/Others had lower hit rates from 2013 to 2017. The marginal differences are on the order of 2.5 to 3.6 percentage points for frisks and are statistically significant at the $p < .01$ level for years 2013 to 2015, but show a reversal in 2018 and 2019, when the hit rate for weapons after a frisk was higher for Blacks than for Whites/Others.

Figure 12 shows the visualization of the estimates by year for the hit rates for weapons for Blacks compared to White/Other groups searched under similar contexts. Hit rates are on average lower for weapons for Blacks, with the exception of 2018 when they are higher, and 2019, when the results show no difference. While the p -value for the disparities in hit rates for weapons does not reach the $p < .01$ level of statistical significance, this graph shows that the earlier years disfavored Blacks and the 95 percent confidence intervals do not overlap.

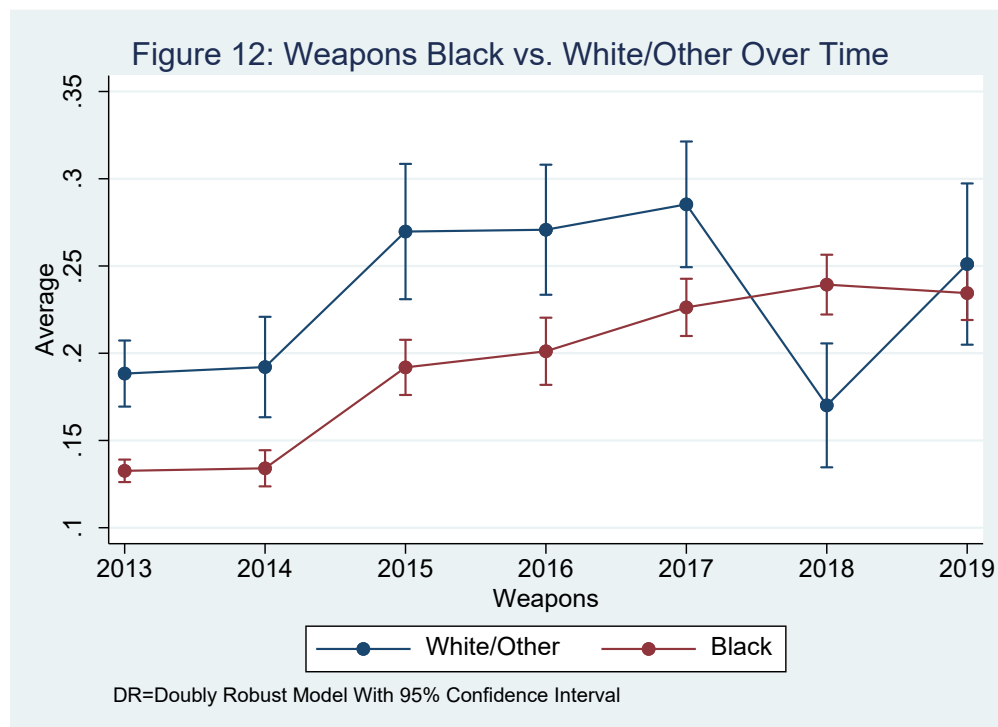


Table 24 shows the hit rates for contraband and weapons for Hispanics compared to White/Others subjected to frisks and searches. For Hispanics, the hit rates for contraband for frisks and searches are nearly identical to White/Other groups in all years, with the exception of 2018 when the hit rates for Hispanics are significantly higher. When differences exist, they are less than 2 percentage points and one cannot reject the possibility of zero difference in 1 out of 100 times by chance alone. The hit rates for weapons for Hispanics appears to be on average lower by 1 to 7 percentage points compared to similarly situated White/Other groups, with the exception of 2018, when they are noticeably higher.

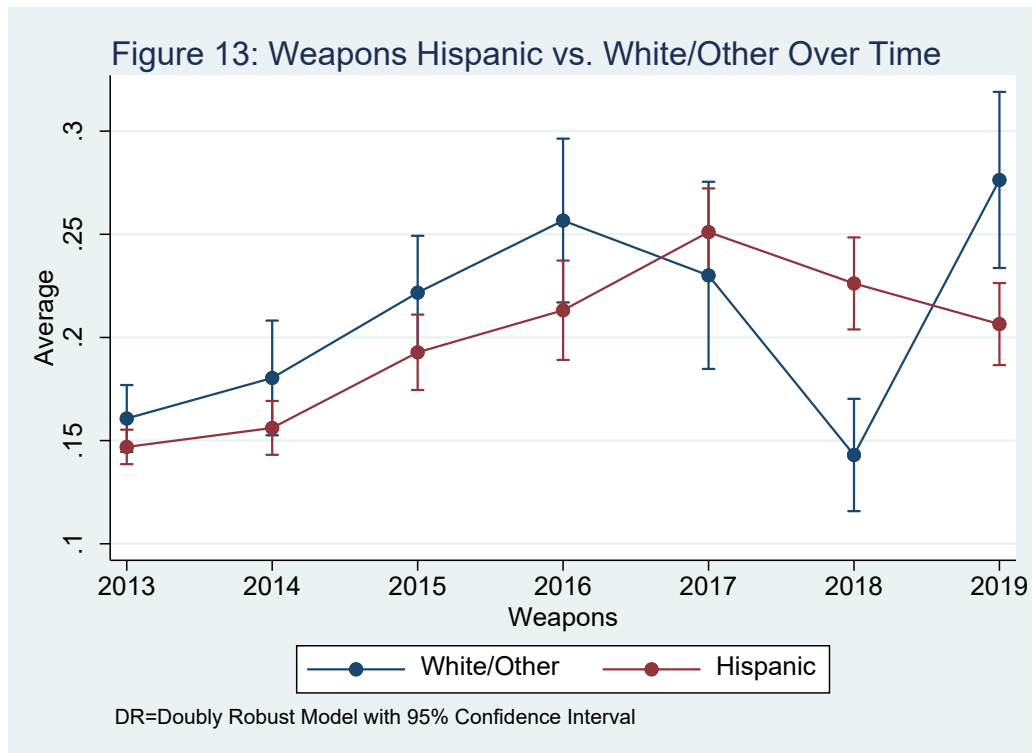
Table 24. DR Hit Rates for Hispanics Compared to Whites/Others

	Frisk		Search	
	(1)	(2)	(3)	(4)
	Contraband	Weapons	Contraband	Weapons
2013				
Hispanic (OR)	0.976 (0.0807)	0.819** (0.0591)	1.037 (0.115)	0.934 (0.0898)
Other	0.042	0.045	0.164	0.161
Hispanic	0.039	0.034	0.166	0.147
Observations	47433	47549	8733	8756
2014				
Hispanic (OR)	0.943 (0.113)	0.825 (0.122)	0.974 (0.147)	1.084 (0.186)
Other	0.061	0.072	0.163	0.180
Hispanic	0.056	0.057	0.158	0.156
	13119	13063	3511	3519
2015				
Hispanic (OR)	1.031 (0.158)	0.970 (0.155)	0.996 (0.189)	0.915 (0.177)
Other	0.081	0.083	0.214	0.222
Hispanic	0.081	0.078	0.213	0.193
	6385	6436	1929	1954
2016				
Hispanic (OR)	1.247 (0.271)	0.662 (0.125)	1.210 (0.250)	0.558 (0.138)
Other	0.073	0.123	0.162	0.257
Hispanic	0.085	0.090	0.188	0.213
	3288	3393	1393	1389
2017				
Hispanic (OR)	1.128	1.067	1.231	1.324

	(0.230)	(0.261)	(0.214)	(0.307)
Other	0.216	0.154	0.428	0.230
Hispanic	0.222	0.159	0.423	0.251
	2689	2636	1644	1637
2018				
Hispanic (OR)	1.642**	2.637**	1.084	2.119**
	(0.313)	(0.583)	(0.209)	(0.454)
Other	0.155	0.075	0.358	0.143
Hispanic	0.217	0.148	0.389	0.226
	2425	2294	1570	1508
2019				
Hispanic (OR)	0.870	0.924	0.718	0.641
	(0.162)	(0.196)	(0.120)	(0.131)
Other	0.247	0.165	0.406	0.276
Hispanic	0.219	0.153	0.339	0.206
	2707	2655	2020	1969

Note: OR=Odds Ratio; standard errors in parentheses; effective sample size from observations is lower than actual observations due to weighting. DR=doubly robust and includes all control variables and entropy weight. Control variables include major crime suspected; day of the week; patrol shift; housing, transit, or other location; gender of person stopped; age of person stopped; SQF based on radio run; precinct location. ** $p < .01$

The trends in hit rates for weapons for Hispanics compared to Whites/Others searched are also evident from a review of Figure 13, and shows that Hispanics for all but two years of 2017 and 2018 have lower hit rates for weapons. In 2018, Hispanics compared to White/Others searched have a significantly higher hit rate for weapons, a disparity that is significant at the $p < .01$ level. In 2019, Hispanics compared to White/Others searched have a lower hit rate for weapons, a difference that is not significant at the $p < .01$ level, but large enough that it is significant at the $p < .05$ level.



Because of the relatively small number of searches, the differences in hit rates are not estimated with sufficient precision to rule out the possibility that for the majority of years there are no actual differences in the hit rates for contraband and weapons. However, the generally lower hit rates for weapons when stops involve frisks or searches for Black and Hispanic subjects relative to White/Other subjects suggest this outcome should continue to be monitored closely, as less productive searches suggest that officers' decisions to search Black and Hispanic suspects might be generated by racial bias.

V. CONCLUSION

The number of stop reports filed by NYPD officers decreased dramatically between 2013 and 2019. This rapid decline commenced before the *Floyd* remedial order but accelerated after the NYPD started to implement the reforms mandated by the remedial order. As detailed in the

Monitor's Ninth, Eleventh, and other Reports, the NYPD has made substantial changes to its stop policies, documentation, training, and auditing. The stop form itself was revised and can now be completed using an electronic form that officers can fill out on their phones, on tablets, or on a computer at the command. Importantly, during Compstat management accountability meetings, NYPD executives no longer emphasize increasing the numbers of stops as a key crime control output, so area commanders are no longer under pressure to have their officers make stops to show that they are indeed focused on reducing crime in their areas of responsibility.

The number of Blacks and Hispanics subjected to stop encounters dropped significantly between 2013 and 2019, though the overall share of stops by race and ethnicity remained largely unchanged. The analyses also show evidence of a reduced stability in the locations that have relatively high stops for a given year. These findings suggest that stop activities are no longer as spatially concentrated as they were in the past, which may reflect a movement away from using SQF activities as a crime control strategy in relatively high-crime places.

Racial disparities in frisk, search, summons, arrest, use of force, and the recovery of a weapon or other contraband diminished over the study time period. These results suggest that the post-*Floyd* reforms have helped address 14th Amendment concerns identified by the Court for stops that are recorded. Although the DR estimation used in this report compares Blacks or Hispanics stopped to White/Other groups stopped under similar measured contexts, this approach can only construct similarly situated comparisons based on the availability of accurate recording of stop data. As a result, undocumented stops raise concerns about the ability to draw strong conclusions about compliance with the 14th Amendment and concerns about Blacks and Hispanics being treated similarly to Whites/Others when stopped by the NYPD. This is particularly the case for comparisons of frisks, arrests, and uses of force for Blacks. Estimates of disparities in stop

outcomes for Hispanics compared to similarly situated White/Other groups appears to be largely unaffected by the different assumptions about the level of undocumented stops.

The NYPD has acknowledged the undocumented stops issue and, via the reforms mandated by the Court's remedial order, implemented a number of review mechanisms that have provided insights on the size of the undocumented stop problem. In addition to the ongoing monitor audits of stop reports, the NYPD mechanisms include QAD RAND and police-initiated enforcement audits of events that require stop reports, supervisory review of stop reports and BWC videos, periodic RISKS (Remediation of Identified Situations Key to Success) reviews of command performance, and CCRB complaint reviews for missing stop reports. It is important to note that the citywide adoption of BWCs along with the NYPD's other efforts may have generated additional stop report documentation, as officers generated 13,459 stop reports in 2019, a 22 percent increase over the 11,008 stop reports submitted in 2018. Nevertheless, as shown in the Monitor's Eleventh Report, all reviews and auditing mechanisms suggest undocumented stops remain a problem for the NYPD.

This report attempts to understand whether the potential inclusion of undocumented stops affects the analyses of compliance with the remedial order based on the documented stops. The results of these analyses raise concerns that racial disparities in stops made by NYPD officers may persist. It is important for the NYPD to strengthen its efforts to ensure that officers document all of their stops. Without complete stop data, it will not be possible to conduct valid and reliable statistical analyses that can appraise whether the NYPD is in substantial compliance with the Court's remedial order.

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